FEDERAL
PUBLICATION

328.7

United States Government
Designated Depository
Library of Washington University
St. Louis, Mo.

T28.

REPORT

OF THE

DIRECTOR OF THE MINT

UPON THE

PRODUCTION

OF THE

PRECIOUS METALS IN THE UNITED STATES

DURING THE

CALENDAR YEAR 1898.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1899.

Treasury Department,
Document No. 2149.
Director of the Mint.

CONTENTS.

Page.

LETTER OF TRANSMITTAL 5

PART I:

Production of gold in the United States, 1898 9
Production of silver in the United States, 1898 11
Deposits and redeposits of gold 16
Deposits and redeposits of silver 19
Coinage of the United States 22
Bars manufactured 23
Purchases of silver 23
Imports and exports of the precious metals 25
Movement of gold from the United States 30
The market for silver in 1898 31
Stock of money in the United States 32
World's industrial consumption of the precious metals 33
Gold and silver used in the industrial arts 44
World's production of gold and silver in 1898 47
World's coinage, 1896, 1897, and 1898 50
Reports of the special agents of the Bureau of the Mint on the production of the precious metals in 1898, in the several States and Territories 51
- I.—Alaska 53
- II.—Arizona 62
- III.—California 64
- IV.—Colorado 75
- V.—Idaho 101
- VI.—Montana 104
- VII.—Nevada 118
- VIII.—New Mexico 120
- IX.—Oregon 121
- X.—Southern Appalachian States 127
- XI.—South Dakota 133
- XII.—Utah 135
- XIII.—Washington 141
- XIV.—Wyoming 147

PART II:

Production of gold and silver in foreign countries 149
- Africa 151
- Argentina 161
- Australasia 161
- Austria-Hungary 176
- Bolivia 177
- Brazil 178
- British India 183
- British North America 184
- Central America 194
- Chile 198
- China 200
- Colombia 202
- East Indies 204
- Ecuador 207
- France 207
- Germany 208
- Great Britain 208
- Greece 209
- The Guianas 209
- Italy 210
- Japan 211
- Formosa 211
- Korea 212
- Mexico 212

PART II—Continued.

Production of gold and silver in foreign countries—Continued. Page.

Yukon (*see* Canada) 184
Norway 215
Peru 215
Portugal 217
Russia 217
Servia 218
Spain 218
Sweden 218
Uruguay 219
Venezuela 219

PART III.—GENERAL STATISTICS:

TABLE I.—Deposits and purchases of gold and silver, by weight 222
II.—Deposits and purchases of gold and silver, by value 224
III.—Deposits of unrefined gold of domestic production, by weight. 226
IV.—Deposits of unrefined gold of domestic production, by value 228
V.—Deposits of unrefined silver of domestic production, by weight 230
VI.—Deposits of unrefined silver of domestic production, by value. 232
VII.—Bars manufactured, by weight 232
VIII.—Bars manufactured, by value 234
IX.—Recoinage of United States gold and silver coins, 1898 234
X.—Quantity and cost of silver used in the coinage of silver dollars 236
XI.—Quantity and cost of metal obtained by transfer and purchase for subsidiary coinage 237
XII.—Silver for subsidiary coinage 238
XIII.—Coinage of the United States during the calendar year 1898 240
XIV.—Assets and liabilities of mints and assay offices December 31, 1898 242
XV.—Unrefined domestic gold and silver bullion deposited at the mints and assay offices to the close of the calendar year 1898. 244
XVI.—Production of gold and silver in the United States, annually, from the organization of the Mint 245
XVII.—Annual statement of Mr. Valentine of production of the precious metals in the United States and Mexico 246
XVIII.—Highest, lowest, and average price of silver in London since 1833 249
XIX.—Ratio of silver to gold each year since 1687 250
XX.—Highest, lowest, and average price of silver and ratio to gold since 1873 251
XXI.—Imports of base bullion and ore 258
XXII.—Imports of gold and silver coin and bullion 260
XXIII.—Imports of gold and silver coin and bullion, by countries 262
XXIV.—Exports of domestic gold and silver 264
XXV.—Exports of domestic gold and silver, by countries 264
XXVI.—Exports of foreign gold and silver 266
XXVII.—Exports of foreign gold and silver, by countries 266
XXVIII.—Recapitulation of imports and exports 268
XXIX.—Coinage of nations, 1896, 1897, and 1898 269
XXX.—World's production of gold and silver, 1896, 1897, and 1898 270–272
XXXI.—Coinages of the United States, by denominations and values, since the organization of the Mint 273
XXXII.—Fractional and subsidiary coinage since 1792 273
XXXIII.—Production of gold and silver in the world since the discovery of America 274
XXXIV.—Coinages, by institutions, from organization of the Mint 276

LETTER OF TRANSMITTAL.

Treasury Department,
Bureau of the Mint,
Washington, D. C., October 24, 1899.

Sir: I have the honor to hand you herewith my report on the production of gold and silver in the United States and in the world for the calendar year 1898, together with such information as to their coinage and consumption as this Bureau has been able to gather. The returns for this country have been carefully obtained through officials and special agents of this Bureau, and the aggregate of precious metals reported has been actually traced from production to market. The figures are therefore conservative, but are believed approximately full. The statistics for foreign countries are obtained from official sources wherever governmental calculations are made, and where such returns can not be had the best obtainable estimates are given and the authority stated.

Respectfully,

Geo. E. Roberts,
Director of the Mint.

To the Honorable Secretary of the Treasury.

PART I.

PRODUCTION, EMPLOYMENT, AND MOVEMENT OF GOLD AND SILVER IN THE UNITED STATES, AND SURVEY OF THE WORLD'S PRODUCTION OF GOLD AND SILVER IN 1898.

GENERAL REPORT.

PRODUCTION OF GOLD IN THE UNITED STATES, CALENDAR YEAR 1898.

The production of gold in the United States in the calendar year 1898 was 96,995 kilograms, fine, or 3,118,398 ounces, fine, of the value of $64,463,000. The South African Republic produced 119,190 kilograms, or 3,831,975 ounces, fine, of the value of $79,213,953. Australasia produced 97,594 kilograms, or 3,137,644 ounces, fine, of the value of $64,860,800. These three countries are the great gold producers of the world, their output aggregating 313,779 kilograms, or 10,088,017 ounces, fine, of the value of $208,537,753, or 73 per cent of the product of the world.

Next comes Russia, with 38,314 kilograms, valued at $25,463,400; Canada, with 20,727 kilograms, valued at $13,775,400; India, with 11,709 kilograms, valued at $7,781,500; Mexico, with 12,790 kilograms, valued at $8,500,000, and China, with 9,146 kilograms, valued at $6,078,700. These five aggregate 92,686 kilograms, valued at $61,599,000, or over 21 per cent of the whole, leaving 6 per cent to the remainder of the world.

Before 1897 the United States for years stood first in gold output. In that year, however, the South African Republic surpassed it, and in 1898 it increased its excess. Nevertheless the output of the United States in 1898 was the largest in its history, with the exception of that for 1853, when it was only $537,000 greater. The increase over 1897 was $7,100,000. This increase is due principally to Colorado and California. Increases also took place in most of the larger mining States and Territories, excepting Arizona. In Colorado the increase was $4,091,000 and in California $1,019,600. Montana and Utah also show considerable increases. Arizona decreased her output by $430,800.

In estimating the gold yield of the United States in any given year only that gold is looked upon as really produced that has been refined—made ready for the market—and the ascertained amount of domestic origin (which is comparatively insignificant) that has been exported to foreign countries for reduction.

It has been the custom of the Bureau of the Mint to make for every calendar year two independent calculations of the gold product of the country and to take their mean as the closest approximation that can be had to the actual outturn of the mines. The first of these is based on the amount of gold put upon the market by private refineries during the year, plus the fine gold contained in the unrefined of domestic production deposited at the mints and assay offices of the United States, plus the pure metal of domestic production contained in ores, copper matte, etc., exported to other countries for reduction. The second calculation is based on the known disposition made of the newly produced gold in any calendar year. Such gold is either deposited at the mints and assay offices of the United States, or exported from the United States in the form of bullion, ores, or copper matte, or used in the industrial arts. If foreign gold bullion enters into any of the above items, its amount must of course be deducted.

Put in tabular form, the first calculation of the gold product of the United States in the calendar year 1898 assumes the following shape:

APPROXIMATE GOLD PRODUCT OF THE MINES OF THE UNITED STATES DURING THE CALENDAR YEAR 1898.

Items reported for 1898.	Fine ounces.
Domestic product in fine gold bars reported by private refineries	2,237,314
Unrefined gold of domestic production deposited at the mints and assay offices	876,733
Domestic gold contained in ores, copper matte, etc., exported for reduction	8,721
Total	3,122,768

The second calculation of the gold yield of the mines of the United States in the calendar year 1898, reduced to a table, is as follows:

APPROXIMATE DISPOSITION OF THE GOLD PRODUCT OF THE MINES OF THE UNITED STATES DURING THE CALENDAR YEAR 1898.

Disposition.	Fine ounces.
Bullion deposited at the mints and assay offices classified as of domestic production	3,603,176
Domestic bullion other than United States mint or assay office bars exported from the United States	5,868
Domestic gold in ores, copper matte, etc., exported	8,721
Bullion of domestic production reported by private refineries in the United States as having been made into bars for manufacturers and jewelers for use in the industrial arts	34,678
Total	3,652,443
Deduct foreign bullion reported to the Bureau of the Mint by private refineries in the United States as contained in their product of fine gold bars deposited at the mints and assay offices or entered at the custom-houses for exportation as of domestic production, but derived from foreign ores	538,414
Net total	3,114,029

Either of these results is an unusually close approximation to the actual yield. Their average (3,118,398 ounces, or 96,995 kilograms, fine, of the value of $64,463,000) may be taken as the actual output of the mines of the country.

The gold production for 1897 and 1898, with the increases and decreases in the various sections, is shown as follows:

TABLE SHOWING THE PRODUCT OF GOLD IN THE SEVERAL STATES AND TERRITORIES IN 1897 AND 1898 AND THE INCREASE OR DECREASE OF THE PRODUCTION OF EACH IN THE LATTER YEAR.

State or Territory.	Value.			
	1897.	1898.	Increase.	Decrease.
Alaska	$1,778,000	$2,524,800	$746,800	
Arizona	2,895,900	2,465,100		$430,800
California	14,618,300	15,637,900	1,019,600	
Colorado	19,104,200	23,195,300	4,091,100	
Georgia	149,300	128,600		20,700
Idaho	1,701,700	1,716,900	15,200	
Michigan	62,700	100		62,600
Montana	4,373,400	5,126,900	753,500	
Nevada	2,976,400	2,994,500	18,100	
New Mexico	356,500	539,000	182,500	
North Carolina	34,600	84,000	49,400	
Oregon	1,353,100	1,177,600		175,500
South Carolina	84,700	104,200	19,500	
South Dakota	5,694,900	5,699,700	4,800	
Texas	7,400	300		7,100
Utah	1,726,100	2,285,400	559,300	

TABLE SHOWING THE PRODUCT OF GOLD IN THE SEVERAL STATES AND TERRITORIES IN 1897 AND 1898, ETC.—Continued.

State or Territory.	Value.			
	1897.	1898.	Increase.	Decrease.
Washington	$419, 900	$766, 200	$346, 300	
Alabama Iowa Maryland Minnesota Tennessee Vermont Virginia Wyoming	25, 900	16, 500		$9, 400
Total	57, 363, 000	64, 463, 000	7, 806, 100	706, 100
Net increase			7, 100, 000	

PRODUCTION OF SILVER IN THE UNITED STATES, CALENDAR YEAR 1898.

The United States still occupies the second place as a silver producer, to which it was relegated by Mexico in 1897. In 1898 it produced 1,693,563 kilograms, fine, with a commercial value of $32,118,400, against the Mexican production of 1,765,116 kilograms, fine, with a commercial value of $33,475,400. Together they produce 67 per cent of the world's product. No other country approaches them, the nearest being Australasia, Bolivia, and Peru. The product of the last two is somewhat uncertain, but none of the three exceed 374,000 kilograms.

The silver product of the United States in any given calendar year is estimated in precisely the same manner as the gold product, namely, by making two independent calculations of the same and taking their mean as the actual product.

APPROXIMATE SILVER PRODUCT OF THE MINES OF THE UNITED STATES DURING THE CALENDAR YEAR 1898.

Items reported for 1898.	Fine ounces.
Domestic product in fine silver bars reported by private refineries	52, 972, 383
Unrefined silver of domestic production deposited at the mints and assay offices	516, 026
Domestic silver contained in ores, copper matte, etc., exported for reduction	1, 066, 954
Total	54, 555, 363

The second is as follows:

APPROXIMATE DISPOSITION OF THE SILVER PRODUCT OF THE MINES OF THE UNITED STATES DURING THE CALENDAR YEAR 1898.

Disposition.	Fine ounces.
Bullion deposited at the mints and assay offices, classified as of domestic production	5, 270, 974
Domestic bullion other than United States mint or assay office bars exported from the United States	82, 014, 625
Domestic silver in ores, copper matte, etc., exported for reduction	1, 066, 954
Bullion of domestic production reported by private refineries in the United States as having been made into bars for manufacturers and jewelers for use in the industrial arts	2, 940, 254
Domestic bullion used in the manufacture of foreign coins	450, 000
Increase in the approximate stock of silver bars exclusive of any bars bearing the stamp of a United States mint or assay office in the United States, held by the Mercantile Safe Deposit Company and other institutions at the close of the calendar year 1898, according to information furnished the Bureau of the Mint	15, 976
Total	91, 758, 783
Deduct foreign bullion reported to the Bureau of the Mint by private refineries in the United States as contained in their product of fine silver bars deposited at the mints and assay offices or entered at the custom-houses for exportation as of domestic production, but derived from foreign ores	37, 439, 089
Net total	54, 319, 694

The average of these results (54,438,000 ounces, or 1,693,563 kilograms, fine, with a coining value of $70,384,485, and a commercial value at the average price of an ounce of silver during the year—$0.59—of $32,118,400) is the estimated yield.

The difference between the two estimates (235,669 ounces) is smaller than usual; it probably results from the fact that the number of ounces constituting the second item in the second calculation is obtained from the invoiced value of domestic bullion other than United States mint or assay office bars exported from the United States in the calendar year 1898 by dividing the latter sum by the average quoted London price of an ounce of fine silver during the year, namely, $0.59 per fine ounce. The result can only be an approximation, for the reason that while the export of silver is at the price paid by London, the invoice price is not, as is assumed in the table, in the absence of minute information, always the quoted London price.

Doubtless, three-quarters of the time the London quotation is the exact amount London will pay for silver to be shipped within ten days. Sometimes, however, the quotation is nominal and London purchasers pay slightly above or slightly below it. Then again, the market sometimes changes during the day and will advance after the quotation is made, or sometimes decline after the quotation is made.

The production of silver in the United States for 1898 allows a slight increase over 1897. This result is due to a very large increase in Colorado.

The following table gives details of the silver production of the United States:

TABLE SHOWING THE PRODUCT OF SILVER IN THE SEVERAL STATES AND TERRITORIES IN 1897 AND 1898 AND THE INCREASE OR DECREASE OF THE PRODUCTION OF EACH IN THE LATTER YEAR.

State or Territory.	Weight.			
	1897.	1898.	Increase.	Decrease.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*
Alabama	100	100		
Alaska	116,400	92,400		24,000
Arizona	2,239,900	2,246,800	6,900	
California	474,400	642,300	167,900	
Colorado	21,636,400	22,815,600	1,179,200	
Georgia	600	500		100
Idaho	4,901,200	5,073,800	172,600	
Michigan	60,300	32,400		27,900
Montana	15,667,900	14,807,200		860,700
Nevada	1,228,900	805,000		423,900
New Mexico	539,500	425,300		114,200
North Carolina	300	700	400	
Oregon	69,000	30.000	61,000	
South Carolina	200	300	100	
South Dakota	147,600	152,300	4,700	
Texas	404,700	472,900	68,200	
Utah	6,265,600	6,485,900	220,300	
Washington	106,900	254,400	147,500	
Wyoming	100	100		
Total	53,860,000	54,438,000	2,028,800	1,450,800
Net increase			578,000	

The next table shows the gold and silver product by States, as reported by Mint officers and agents:

PRODUCT OF GOLD AND SILVER IN THE INDIVIDUAL STATES AND TERRITORIES REPORTED BY MINT OFFICERS AND AGENTS FOR THE CALENDAR YEAR 1898.

State or Territory.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Alabama	318	$6, 578	63	$82	$6, 660
Alaska	121, 766	2, 517, 121	88, 474	114, 390	2, 631, 511
Arizona	121, 697	2, 515, 710	2, 297, 784	2, 970, 872	5, 486, 582
California	769, 476	15, 906, 478	701, 788	907, 362	16, 813, 840
Colorado	1, 137, 433	23, 512, 819	23, 181, 337	29, 971, 830	53, 484, 649
Georgia	6, 482	133, 990	493	637	134, 627
Idaho	91, 698	1, 895, 566	5, 256, 700	6, 796, 541	8, 692, 107
Maryland	43	890	2	2	892
Michigan	3	62	32, 457	41, 965	42, 027
Montana	253, 868	5, 247, 913	14, 818, 662	19, 159, 482	24, 407, 395
Nevada	150, 582	3, 112, 797	979. 698	1, 266, 680	4, 379, 477
New Mexico	39, 273	811, 840	488, 059	631, 026	1, 442, 866
North Carolina	4, 352	89, 960	1, 509	1, 951	91, 911
Oregon	58, 856	1, 216, 669	128, 326	165, 917	1, 382, 586
South Carolina	5, 098	105, 398	325	421	105, 819
South Dakota	278, 905	5, 765, 478	138, 383	178, 919	5, 944, 397
Tennessee	7	147	1	1	148
Texas	12	248	472, 953	611, 495	611, 743
Utah	114, 767	2, 372, 444	6, 570, 256	8, 494, 876	10, 867, 320
Virginia	245	5, 074	15	19	5, 093
Washington	29, 611	612, 118	329, 548	426, 083	1, 038, 201
Wyoming	242	5, 000	....	....	5, 000
Total	3, 184, 734	65, 834, 300	55, 486, 833	71, 740, 551	137, 574, 851

It will be noticed that the product of both gold and silver reported by the agents is greater than that calculated by this Bureau. The reason of this is clear. The one—that made by this Bureau—is of the finished product, fine metal ready for the market; the other is the value of the metal supposed to be in the ore before it is yet smelted and refined. The table last given above can not be taken as final and must be replaced by another in which the value of the pure metal produced, as estimated by this Bureau, is prorated among the several States and Territories in proportion to the amount of gold and silver claimed by the agents to have been produced in them in 1898.

This second table is here appended:

APPROXIMATE DISTRIBUTION BY PRODUCING STATES AND TERRITORIES OF THE PRODUCT OF GOLD AND SILVER IN THE UNITED STATES FOR THE CALENDAR YEAR 1898, AS ESTIMATED BY THE DIRECTOR OF THE MINT.

State or Territory.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Alabama	242	$5, 000	100	$129	$5, 129
Alaska	122, 137	2, 524, 800	92, 400	119, 467	2, 644, 267
Arizona	119, 249	2, 465, 100	2, 246, 800	2, 904, 954	5, 370, 054
California	756, 483	15, 637, 900	642, 300	830, 448	16, 468, 348
Colorado	1, 122, 073	23, 195, 300	22, 815, 600	29, 498, 958	52, 694, 258
Georgia	6, 221	128, 600	500	646	129, 246
Idaho	83, 055	1, 716, 900	5, 073, 800	6, 560, 065	8, 276, 965
Iowa	5	100	....	....	100
Maryland	29	600	....	....	600
Michigan	5	100	32, 400	41, 891	41, 991
Minnesota	5	100	....	....	100
Montana	248, 014	5, 126, 900	14, 807, 200	19, 144, 663	24, 271, 563
Nevada	144, 859	2, 994, 500	805, 000	1, 040, 808	4, 035, 308
New Mexico	26, 074	539, 000	425, 300	549, 883	1, 088, 883
North Carolina	4, 064	84, 000	700	905	84, 905
Oregon	56, 966	1, 177. 600	130, 000	168, 081	1, 345, 681
South Carolina	5, 041	104, 200	300	388	104, 588
South Dakota	275, 723	5, 699, 700	152, 300	196, 913	5, 896, 613

APPROXIMATE DISTRIBUTION BY PRODUCING STATES AND TERRITORIES OF THE PRODUCT OF GOLD AND SILVER IN THE UNITED STATES, ETC.—Continued.

State or Territory.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Tennessee	43	$900			$900
Texas	14	300	472, 900	$611, 426	611, 726
Utah	110, 556	2, 285, 400	6, 485, 900	8, 385, 810	10, 671, 210
Virginia	218	4, 500			4, 500
Washington	37, 065	766, 200	254, 400	328, 921	1, 095, 121
Wyoming	257	5, 300	100	129	5, 429
Total	3, 118, 398	64, 463, 000	54, 438, 000	70, 384, 485	134, 847, 485

In answer to the many interrogatories received by the Bureau relative to the sources of the production of the precious metals in the United States, the following table, compiled from reports made by the mint officers and agents as to the sources of production for the calendar year 1898, shows the distribution among the various gold and silver producing States and Territories of the amount of gold and silver extracted from quartz, the amount of gold obtained from placer, and the amount of silver obtained from lead ores and copper ores as by-products:

DISTRIBUTION OF THE GOLD AND SILVER PRODUCT OF THE UNITED STATES FOR THE CALENDAR YEAR 1898, AS TO SOURCES OF PRODUCTION, AS REPORTED BY MINT OFFICERS AND AGENTS.

State or Territory.	Gold.		Silver.		
	Quartz.	Placer.	Quartz.	Lead ores.	Copper ores.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*
Alabama	153	165	63		
Alaska	64, 591	57, 175	88, 474		
Arizona *a*	115, 697	6, 000	1, 500, 000	297, 784	500, 000
California	584, 144	185, 332	278, 600	157, 443	265, 745
Colorado	1, 110, 893	26, 540	4, 636, 267	*b* 18, 545, 070	
Georgia	4, 829	1, 653	493		
Idaho	57, 235	34, 463	1, 400, 078	3, 856, 622	
Maryland	15	28	2		
Michigan	3				32, 457
Montana	222, 206	31, 662	2, 558, 759	2, 763, 991	9, 495, 912
Nevada	145, 554	5, 028	577, 088	402, 610	
New Mexico	36, 181	3, 092	381, 362	106, 697	
North Carolina	3, 227	1, 125	1, 509		
Oregon	44, 567	14, 289	128, 326		
South Carolina	5, 008	90	325		
South Dakota	278, 905		138, 383		
Tennessee	2	5	1		
Texas	12		472, 953		
Utah	114, 767		1, 344, 636	5, 062, 459	163, 161
Virginia	160	85	15		
Washington	24, 152	5, 459	209, 548	120, 000	
Wyoming	218	24			
Total	2, 812, 519	372, 215	13, 716, 882	31, 312, 676	10, 457, 275

a Estimated. *b* Lead and copper ores.

Considered as to character of source, the product of 1898 shows some change with regard to silver, as exhibited in the following table:

Source.	1891.	1897.	1898.
	Per cent.	*Per cent.*	*Per cent.*
Quartz mills	49. 2	21. 8	24. 7
Lead bullion	40. 6	57. 5	56. 2
Copper bullion	10. 2	20. 7	19. 1
Total	100	100	100

As compared with 1891 the mill product has decreased one-half; the product from lead ores has increased about 16 per cent, and the product from copper ores has nearly doubled; but as compared with 1897 the mill product has increased and the other two sources have decreased, showing a slight tendency to revert to former conditions.

The annual production of gold and silver from the mines of the United States since 1860 is shown in the following table:

(The commercial value of the silver product is reckoned at the average yearly market price of silver and its coining value in United States dollars.)

PRODUCT OF GOLD AND SILVER FROM MINES IN THE UNITED STATES SINCE 1860.

[The estimate for 1860–1872 is by R. W. Raymond, commissioner, and since 1872 by the Bureau of the Mint.]

Calendar year.	Gold.		Silver.		
	Fine ounces.	Value.	Fine ounces.	Commercial value.	Coining value.
1860	2, 225, 250	$46, 000, 000	116, 015	$157, 000	$150, 000
1861	2, 080, 125	43, 000, 000	1, 546, 875	2, 062, 000	2, 000, 000
1862	1, 896, 300	39, 200, 000	3, 480, 469	4, 685, 000	4, 500, 000
1863	1, 935, 000	40, 000, 000	6. 574, 219	8, 842, 000	8, 500, 000
1864	2, 230, 088	46, 100, 000	8, 507, 812	11, 443, 000	11, 000, 000
1865	2, 574, 759	53, 225, 000	8, 701, 171	11, 642, 000	11, 250, 000
1866	2, 588, 063	53, 500, 000	7, 734, 375	10, 356, 000	10, 000, 000
1867	2. 502, 197	51, 725, 000	10, 441, 406	13, 866, 000	13, 500, 000
1868	2, 322, 000	48, 000, 000	9, 281, 250	12, 307, 000	12, 000, 000
1869	2, 394, 563	49, 500, 000	9, 281, 250	12, 298, 000	12, 000, 000
1870	2, 418, 750	50, 000, 000	12, 375, 000	16, 734, 000	16, 000, 000
1871	2, 104, 313	43, 500, 000	17, 789, 062	23, 578, 000	23, 000, 000
1872	1, 741, 500	36, 000, 000	22, 236, 328	29, 396, 000	28, 750, 000
Total	29, 012, 908	599, 750, 000	118, 065, 232	157, 366, 000	152, 650, 000
1873	1, 741, 500	36, 000, 000	27, 650, 000	35, 890, 000	35, 750, 000
1874	1, 620, 563	33, 500, 000	28, 849, 000	36, 869, 000	37, 300, 000
1875	1, 615, 725	33, 400, 000	24, 518, 000	30, 549, 000	31, 700, 000
1876	1, 930, 162	39, 900, 000	30, 009, 000	34, 690, 000	38, 800, 000
1877	2, 268, 788	46, 900, 000	30, 783, 000	36, 970, 000	39, 800, 000
1878	2, 476, 800	51, 200, 000	34, 960, 000	40, 270, 000	45, 200, 000
1879	1, 881, 787	38, 900, 000	31, 550, 000	35, 430, 000	40, 800, 000
1880	1, 741, 500	36, 000, 000	30, 320, 000	34, 720, 000	39, 200, 000
1881	1, 678, 612	34, 700, 000	33, 260, 000	37, 850, 000	43, 000, 000
1882	1, 572, 187	32, 500, 000	36. 200, 000	41, 120, 000	46, 800, 000
1883	1, 451, 250	30, 000, 000	35, 730, 000	39, 660, 000	46, 200, 000
1884	1, 489, 950	30, 800, 000	37, 800, 000	42, 070, 000	48, 800, 000
1885	1, 538, 325	31, 800, 000	39, 910, 000	42, 500, 000	51, 600, 000
1886	1, 693, 125	35, 000, 000	39, 440, 000	39, 230, 000	51, 000, 000
1887	1, 596, 375	33, 000, 000	41, 260, 000	40, 410, 000	53, 350, 000
1888	1, 604, 841	33, 175, 000	45, 780, 000	43, 020, 000	59, 195, 000
1889	1, 587, 000	32, 800, 000	50, 000, 000	46, 750, 000	64, 646, 000
1890	1, 588, 880	32, 845, 000	54, 500, 000	57, 225, 000	70, 465, 000
1891	1, 604, 841	33, 175, 000	58, 330, 000	57, 630, 000	75, 417, 000
1892	1, 596, 375	33, 000, 000	63. 500, 000	55, 563, 000	82, 101, 000
1893	1, 739, 323	35, 955, 000	60, 000, 000	46, 800, 000	77, 576, 000
1894	1, 910, 813	39, 500. 000	49, 500, 000	31, 422, 000	64, 000, 000
1895	2, 254, 760	46, 610, 000	55, 727, 000	36, 445, 000	72, 051, 000
1896	2, 568, 132	53, 088, 000	58, 835, 000	39, 655, 000	76, 069, 000
1897	2, 774, 935	57, 363, 000	53, 860, 000	32, 316, 000	69, 637, 000
1898	3, 118, 398	64, 463, 000	54, 438, 000	32, 118, 000	70, 384, 000
Total	48, 644, 947	1, 005, 574, 000	1, 106, 709, 000	1, 047, 172, 000	1, 430, 841, 000
Grand total	77, 657, 855	1, 605, 324, 000	1. 224, 774, 232	1, 204, 538, 000	1, 583, 491, 000

Tables showing the product of gold and silver from mines of the United States since 1792 will be found in the Appendix.

DEPOSITS OF GOLD.

The deposits of gold at the mints and assay offices during the calendar year 1898 contained 8,852,461 fine ounces of the value of $182,996,602, an increase of $95,072,370 over the value of the deposits reported for 1897. The redeposits contained 2,956,020 fine ounces of the value of $61,106,351.

The deposits of domestic gold bullion contained 3,603,176 fine ounces of the value of $74,484,259.

For convenience of the Bureau the domestic bullion has been classified as unrefined, refinery bars, and refined bullion; unrefined being bullion received direct from the miners in its crude state, refinery bars (less than 0.992 in fineness) and refined bars (0.992 and over in fineness) being the product of certain smelters, refineries, cyanide and chlorination works deposited at the mints and assay offices.

The deposits and transfers of mutilated and uncurrent domestic gold coin amounted to 63,794 fine ounces, of the value of $1,318,716, of which $549,115 were received from the Treasury and $769,601 were deposited at the mints by private individuals.

The deposits of foreign gold bullion contained 2,283,379 fine ounces, of the value of $47,201,632, of which $10,698,110 represents the value of unrefined and $36,503,522 the value of refined bullion reported to have been received from the countries named in the following statement:

DEPOSITS OF FOREIGN GOLD BULLION.

Country of production.	Fine ounces.	Value.
UNREFINED.		
Central America	19, 281	$398, 574
South America	9, 490	196, 176
British Columbia	24, 359	503, 546
Northwest Territory	342, 759	7, 085, 457
Ontario and Quebec	15, 906	328, 806
Manitoba	115	2, 377
Winnipeg	5	103
Nova Scotia	28, 760	594, 522
Mexico	71, 886	1, 486, 016
Cuba	199	4, 114
Haiti	63	1, 302
China	1, 444	29, 850
British Guiana	201	4, 155
Germany	2, 447	50, 584
Australia	32	661
Africa	528	10, 916
Unknown	46	951
Total	517, 521	10, 698, 110
REFINED.		
Mexico	10	206
England	1, 557, 417	32, 194, 666
France	92, 127	1, 904, 434
Germany	20, 320	420, 051
Japan	11, 999	248, 041
New Zealand	83, 985	1, 736, 124
Total	1, 765, 858	36, 503, 522

The deposits of foreign gold coin received and melted by the mints and assay offices contained 2,760,619 fine ounces of the value of $57,067,064, as shown by the following statement:

Country of coinage.	Fine ounces.	Value.
Great Britain	1,446,904	$29,910,155
France	306,106	6,327,780
Germany	298,351	6,167,467
Spain	39,002	806,240
Mexico	21,338	441,100
Japan	585,483	12,103,000
China	3	69
Chile	26,424	546,229
Argentina	5	97
Mixed	37,003	764,927
Total	2,760,619	57,067,064

The deposits of old jewelry contained 141,493 fine ounces of the value of $2,924,931.

REDEPOSITS OF GOLD.

The redeposits of gold bullion at the mints and assay offices contained 2,956,020 fine ounces of the value of $61,106,351, of which 889,618 fine ounces were in fine bars, 1,108,715 fine ounces in mint bars, and 957,687 fine ounces in unparted bars, as shown by the following table:

UNPARTED GOLD BARS.

Institution at which manufactured.	Institutions at which redeposited.						
	Philadelphia.	San Francisco.	New York.	Denver.	Boise.	Helena.	Seattle.
	Fine ozs.	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*
Carson		8,521					
Denver	483,184		18	81			
Boise	53,565				12,812		
Helena	106,497		159			261	
Charlotte	12,387						
St. Louis	5,484						
Deadwood	6,544						
Seattle	266,075						2,099
Total	933,736	8,521	177	81	12,812	261	2,099

FINE GOLD AND MINT GOLD BARS.

Institution at which manufactured.	Institutions at which redeposited.				
	Fine gold bars.				Mint gold bars.
	Philadelphia.	San Francisco.	New York.	St. Louis.	New York.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*
Philadelphia	36			19	1,108,715
Carson		27,405			
New York	346,262		24,688		
Denver	491,208				
Total	837,506	27,405	24,688	19	1,108,715

The following tables show the deposits and redeposits of gold during the calendar year:

TABLE SHOWING THE WEIGHT OF THE DEPOSITS AND REDEPOSITS OF GOLD BULLION AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES DURING THE CALENDAR YEARS 1897 AND 1898, WITH THE INCREASE OR DECREASE OF THE SAME DURING THE LATTER YEAR.

Classification of deposits of gold bullion.	Calendar year. 1897.	Calendar year. 1898.	Increase, 1898.	Decrease, 1898.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*
Domestic bullion, unrefined	783, 103	876, 733	93, 630	
Domestic bullion, refinery bars	596, 501	800, 963	204, 462	
Domestic bullion, refined	1, 731, 466	1, 925, 480	194, 014	
Total domestic bullion	3, 111, 070	3, 603, 176	492, 106	
Domestic coin, Treasury transfers	17, 268	26, 564	9, 296	
Domestic coin, purchased	18, 696	37, 230	18, 534	
Foreign bullion, unrefined	182, 523	517, 521	334, 998	
Foreign bullion, refined	75, 743	1, 765, 858	1, 690, 115	
Foreign coin, melted	709, 262	2, 760, 619	2, 051, 357	
Jewelers' bars, etc	138, 771	141, 493	2, 722	
Total deposits	4, 253, 333	8, 852, 461	4, 599, 128	
Redeposits:				
Fine bars	942, 886	889, 618		53, 268
Mint bars	287, 648	1, 108, 715	821, 067	
Unparted bars	528, 580	957, 687	429, 107	
Total redeposits	1, 759, 114	2, 956, 020	1, 250, 174	53, 268
Total gold operated on	6, 012, 447	11, 808, 481	5, 849, 302	53, 268
Net increase			5, 796, 034	

TABLE SHOWING THE VALUE OF THE DEPOSITS AND REDEPOSITS OF GOLD BULLION AT THE MINTS AND ASSAY OFFICES OF THE UNITED STATES DURING THE CALENDAR YEARS 1897 AND 1898, WITH THE INCREASE OR DECREASE OF THE SAME DURING THE LATTER YEAR.

Classification of deposits of gold bullion.	Calendar year. 1897.	Calendar year. 1898.	Increase, 1898.	Decrease, 1898.
Domestic bullion, unrefined	$16, 188, 179	$18, 123, 667	$1, 935, 488	
Domestic bullion, refinery bars	12, 330, 764	16, 557, 360	4, 226, 596	
Domestic bullion, refined	35, 792, 588	39, 803, 232	4, 010, 644	
Total domestic	64, 311, 531	74, 484, 259	10, 172, 728	
Domestic coin, Treasury transfers	356, 957	549, 115	192, 158	
Domestic coin purchased	386, 487	769, 601	383, 114	
Foreign bullion, unrefined	3, 773, 096	10, 698, 110	6, 925, 014	
Foreign bullion, refined	1, 565, 748	36, 503, 522	34, 937, 774	
Foreign coin melted	14, 661, 753	57, 067, 064	42, 405, 311	
Jewelers bars, etc	2, 868, 660	2, 924, 931	56, 271	
Total deposits	87, 924, 232	182, 996. 602	95, 072, 370	
Redeposits:				
Fine bars	19, 491, 186	18, 390, 045		$1, 101, 141
Mint bars	5, 946, 222	22, 919, 165	16, 972, 943	
Imported bars	10, 926, 709	19, 797, 141	8, 870, 432	
Total redeposits	36, 364, 117	61, 106, 351	25, 843, 375	1. 101, 141
Total gold operated on	124, 288, 349	244, 102, 953	120, 915, 745	1, 101, 141
Net increase			119, 814, 604	

Tables showing the deposits of gold and silver during the calendar year 1898 will be found in the Appendix.

DEPOSITS OF SILVER.

Silver is coined in the United States on Government account only. Deposits of silver bullion are received by the mints and assay offices of the United States for return to the depositor in fine or unparted bars with the weight and fineness stamped thereon. The deposits of silver for return in fine bars are confined almost exclusively to the New York Assay Office, only a small amount being deposited at other institutions. Fine silver bars manufactured for depositors are either exported or sold for use in the industrial arts in the United States.

The deposits of silver at the mints and assay offices during the calendar year 1898 were 12,252,195 fine ounces, of the coining value of $15,841,222, and the redeposits contained 6,637,813 fine ounces, of the coining value of $8,582,222.

The domestic bullion amounted to 5,270,975 fine ounces, of the coining value of $6,814,996. For the convenience of the Bureau, the domestic silver bullion has been classified as unrefined, refinery bars, and refined bars, similar to domestic gold bullion.

The deposits and transfers of mutilated and uncurrent domestic silver coin amounted to 5,836,348 fine ounces, of the coining value of $7,545,986, of which 5,832,976 fine ounces were received from the Treasury and 3,372 fine ounces purchased over the counter.

The deposits of foreign silver bullion amounted to 626,386 fine ounces, of the value of $809,873, of which 608,095 fine ounces represented the deposits of unrefined bullion and 18,291 fine ounces the deposits of refined bullion reported to have been received from the countries named in the following statement:

Deposits of Foreign Silver Bullion.

Country of production.	Fine ounces.	Value.
UNREFINED.		
Central America	13, 917	$17, 994
South America	382	494
British Columbia	6, 506	8, 412
Northwest Territory	94, 940	122, 751
Ontario and Quebec	3, 949	5, 105
Manitoba and Winnipeg	20	26
Nova Scotia	1, 278	1, 652
Canada, unknown	1, 977	2, 556
Mexico	479, 751	620, 284
Cuba	1, 505	1, 946
Haiti	116	149
China	659	853
Germany	138	178
Australasia	2	3
Africa	61	79
Unknown	2, 894	3, 742
Total	608, 095	786, 224
REFINED.		
Mexico	18, 291	23, 649

The deposits of foreign silver coin received and melted contained 21,091 fine ounces, of the value of $27,269, as shown by the following table:

Country of coinage.	Fine ounces.	Value.
Spain	244	$316
China	2	2
Mexico	3,279	4,240
Haiti	1,054	1,362
Costa Rica	3,001	3,880
Unknown	13,511	17,469
Total	21,091	27,269

REDEPOSITS OF SILVER.

The redeposits of silver bullion at the mints and assay offices contained 6,637,813 fine ounces, of the coining value of $8,582,222, of which 6,200,397 fine ounces were in fine bars, 194,125 fine ounces in standard bars, and 243,291 fine ounces in unparted bars, as shown by the following statements:

UNPARTED SILVER BARS.

Institution at which manufactured.	Institution at which redeposited.						
	Philadelphia.	San Francisco.	New York.	Denver.	Boise.	Helena.	Seattle.
	Fine ozs.	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*	*Fine ozs.*
Carson		67,649					
Denver	50,886		6	35			
Boise	12,774				2,765		
Helena	32,206		55			97	
Charlotte	1,138						
St. Louis	865						
Deadwood	1,158						
Seattle	73,340						317
Total	172,367	67,649	61	35	2,765	97	317

STANDARD AND FINE SILVER BARS.

Institution at which manufactured.	Institution at which redeposited.			
	Standard bars.	Fine bars.		
	New Orleans.	San Francisco.	New Orleans.	New York.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*
Philadelphia	400	1,303,649	4,369,052	
Carson		514,246		
New York	193,725			13,450
Total	194,125	1,817,895	4,369,052	13,450

The following tables show the deposits and redeposits of silver during the calendar year:

Table Showing the Weight of the Deposits and Redeposits of Silver Bullion at the Mints and Assay Offices of the United States during the Calendar Years 1897 and 1898, with the Increase or Decrease of the Same during the Latter Year.

Classification of deposits of silver bullion.	Calendar year.		Increase, 1898.	Decrease, 1898.
	1897.	1898.		
	Fine ounces.	*Fine ounces.*	*Fine ounces.*	*Fine ounces.*
Domestic bullion, unrefined	564, 912	516, 026		48, 886
Domestic bullion, refinery bars	126, 379	101, 214		25, 165
Domestic bullion, refined	3, 975, 662	4, 653, 735	678, 073	
Total domestic bullion	4, 666, 953	5, 270, 975	678, 073	74, 051
Domestic coin, Treasury transfers	4, 012, 110	5, 832, 976	1, 820, 866	
Domestic coin purchased	3, 563	3, 203		360
Trade dollars purchased	249	169		80
Foreign bullion, unrefined	574, 663	608, 095	33, 432	
Foreign bullion, refined		18, 291	18, 291	
Foreign coin	90, 183	21, 091		69, 092
Jewelers' bars, old plate, etc	480, 448	497, 395	16, 947	
Total deposits	9, 828, 169	12, 252, 195	2, 567, 609	143, 583
Redeposits:				
Fine bars	108, 959	6, 200, 397	6, 091, 438	
Standard bars		194, 125	194, 125	
Unparted bars	99, 768	243, 291	143, 523	
Total redeposits	208, 727	6, 637, 813	6, 429, 086	
Total silver operated on	10, 036, 896	18, 890, 008	8, 996, 695	143, 583
Net increase			8, 853, 112	

Table Showing the Value of the Deposits and Redeposits of Silver Bullion at the Mints and Assay Offices of the United States during the Calendar Years 1897 and 1898, with the Increase or Decrease of the Same during the Latter Year.

Classification of deposits of silver bullion.	Calendar year.		Increase, 1898.	Decrease, 1898.
	1897.	1898.		
Domestic bullion, unrefined	$730, 392	$667, 185		$63, 207
Domestic bullion, refinery bars	163, 400	130, 861		32, 539
Domestic bullion, refined	5, 140, 251	6, 016, 950	$876, 699	
Total domestic bullion	6, 034, 043	6, 814, 996	876, 699	95, 746
Domestic coin, Treasury transfers	5, 187, 375	7, 541, 626	2, 354, 251	
Domestic coin purchased	4, 606	4, 141		465
Trade dollars purchased	321	219		102
Foreign bullion, unrefined	742, 998	786, 224	43, 226	
Foreign bullion, refined		23, 649	23, 649	
Foreign coin	116, 600	27, 269		89, 331
Jewelers' bars, old plate, etc	621, 185	643, 098	21, 913	
Total deposits	12, 707, 128	15, 841, 222	3, 319, 738	185, 644
Redeposits:				
Fine bars	140, 877	8, 016, 674	7, 875, 797	
Standard bars		250, 989	250, 989	
Unparted bars	128, 992	314, 559	185, 567	
Total silver operated on	269, 869	8, 582, 222	8, 312, 353	
Total redeposits	12, 976, 997	24, 423, 444	11, 632, 091	185, 644
Net increase			11, 446, 447	

GOLD AND SILVER (EXCLUDING REDEPOSITS) RECEIVED AT THE MINTS AND ASSAY OFFICES DURING THE CALENDAR YEARS SINCE 1880.

Calendar year.	Gold.	Silver (coining value).	Total.
1880	$100, 278, 703	$35, 103, 825	$135, 382, 528
1881	98, 763. 426	30, 326, 848	129, 090, 274
1882	41, 921. 263	35, 161, 254	77, 082, 517
1883	51, 089, 456	36, 978, 184	88, 067, 640
1884	50, 518, 179	36, 670, 731	87, 188, 910
1885	44, 714, 052	35, 836, 725	80, 550, 777
1886	66, 422, 088	39, 086, 070	105, 508, 158
1887	74, 724, 077	46, 381, 333	121, 105, 410
1888	41. 496. 410	41, 323, 973	82, 820, 383
1889	42, 599, 206	41, 977, 265	84, 576, 471
1890	48, 767, 964	55, 198, 037	103, 966, 001
1891	60, 849, 552	70, 994, 120	131, 843, 672
1892	45, 406, 646	84, 591, 898	129, 998, 544
1893	69, 419, 223	62, 465, 005	131, 884, 228
1894	49, 704, 902	14, 120, 605	63, 825, 507
1895	69, 433, 579	13, 843, 636	83, 277, 215
1896	91, 743, 670	10, 873, 160	102, 616, 830
1897	87, 924, 232	12, 707, 128	100, 631, 360
1898	182, 996, 602	15, 841, 222	198, 837, 824

COINAGE OF THE UNITED STATES.

The following table exibits the number of fine ounces and value of gold and silver coinage of the United States, by calendar years, from 1873 to 1898:

COINAGE OF GOLD AND SILVER OF THE MINTS OF THE UNITED STATES, 1873–1898.

Calendar year.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
1873	2, 758, 475	$57, 022, 748	3, 112, 891	$4, 024, 748
1874	1, 705, 441	35, 254, 630	5, 299, 421	6, 851, 777
1875	1, 594, 050	32, 951, 940	11, 870, 635	15, 347, 893
1876	2, 253, 281	46, 579, 453	18, 951, 777	24, 503, 308
1877	2, 128, 493	43, 999, 864	21, 960, 246	28, 393, 045
1878	2, 408, 400	49, 786, 052	22, 057, 548	28, 518, 850
1879	1, 890, 499	39, 080, 080	21, 323, 498	27, 569, 776
1880	3, 014, 163	62, 308, 279	21, 201, 232	27, 411, 694
1881	4, 685, 162	96, 850, 890	21, 609, 970	27, 940, 164
1882	3, 187, 317	65, 887, 685	21, 635, 469	27, 973, 132
1883	1, 414, 581	29, 241, 990	22, 620, 701	29, 246, 968
1884	1, 160, 601	23, 991, 756	22, 069, 935	28, 534, 866
1885	1, 343, 519	27, 773, 012	22, 400, 433	28, 962, 176
1886	1, 400, 240	28, 945, 542	24, 817, 064	32, 086, 709
1887	1, 159. 664	23, 972, 383	27, 218, 101	35, 191, 081
1888	1, 518, 046	31, 380, 808	25, 543, 242	33, 025, 606
1889	1, 035, 899	21, 413, 931	27, 454, 465	35, 496, 683
1890	990, 100	20, 467, 182	30, 320, 999	39, 202, 908
1891	1, 413, 614	29, 222, 005	21, 284, 115	27, 518, 857
1892	1, 682, 832	34, 787, 223	9, 777, 084	12, 641, 078
1893	2, 757, 231	56, 997, 020	6, 808, 413	8, 802, 797
1894	3, 848, 045	79, 546, 160	7, 115, 896	9, 200, 351
1895	2, 883, 941	59, 616, 358	4, 407, 055	5, 698, 010
1896	2, 276, 192	47, 053, 060	17, 858, 594	23, 089, 899
1897	3, 677, 878	76, 028, 485	14, 298, 769	18, 487, 297
1898	3, 772, 561	77, 985, 757	17, 815, 385	23, 034, 033
Total	57, 960, 225	1, 198, 144, 293	470, 832, 938	608, 753, 706

In the Appendix a table will be found showing the value of the coinage executed by each mint since 1792.

The following table shows the number of pieces and value of coinage executed at the mints of the United States during the calendar year 1898.

COINAGE EXECUTED IN THE UNITED STATES, CALENDAR YEAR 1898.

Description.	Pieces.	Value.
Gold	6, 086, 502	$77, 985, 757. 50
Silver dollars (act July 14, 1890)	14, 426, 735	14, 426, 735. 00
Subsidiary silver coins	40, 331, 854	8, 607, 298. 45
Minor coins	62, 355, 166	1, 124, 835. 14
Total	123, 200, 257	102, 144, 626. 09

In addition to the domestic coinage there were manufactured during the calendar year 1898, for the Government of San Domingo (Domingo Republic) the following silver coins:

Denomination.	Pieces.
Pesos	911, 988
Media pesos	605, 640
Twenty centavos	1, 001, 469
Total	2, 519, 097

the planchets for this coinage being furnished ready for striking.

BARS MANUFACTURED 1898.

The following table shows the character and value of gold and silver bars manufactured during the calendar year 1898:

Description.	Gold.	Silver.
Fine bars	$69, 485, 715. 38	$7, 735,409. 88
Mint bars	13, 996, 083. 60	203, 588. 14
Standard bars	17, 949, 522. 18	5, 828. 04
Unparted bars	19, 314, 452. 60	237, 810. 95
Total	120, 745, 773. 76	8, 182, 637. 01

PURCHASE OF SILVER.

Since November 1, 1893, the date of the repeal of the purchasing clause of the act of July 14, 1890, the purchase of silver bullion by the Government has been limited to the silver contained in gold deposits, the small fractions of silver for return in fine bars, the amount retained in payment of charges, surplus silver bullion returned by the operative officers of the mints at the annual settlement, and mutilated domestic silver coins purchased for the subsidiary silver coinage under the provisions of section 3526 of the Revised Statutes.

Table Showing Quantity of Silver Purchased and Cost of Same for Subsidiary Coinage during the Calendar Year 1898.

Stock.	Fine ounces.	Cost.
Partings, charges, and fractions purchased	292, 254. 22	$162, 363. 49
Mutilated coins, including melted assay coins purchased	2, 846. 98	2, 308. 11
Surplus bullion purchased	5, 557. 89	3, 475. 78
Total	300, 659. 09	168, 147. 38

Table Showing the Quantity and Cost of Silver Purchased at Each Mint for Subsidiary Coinage during the Calendar Year 1898.

Mints.	Fine ounces.	Cost.
Philadelphia	190, 607. 22	$106, 649. 00
San Francisco	103, 212. 45	57, 696. 12
New Orleans	5, 162. 48	2, 868. 01
Carson	1, 676. 94	934. 25
Total	300, 659. 09	168, 147. 38

Amount, Cost, Average Price, and Bullion Value of the Silver Dollar of Silver Purchased under the Act of February 28, 1878.

Fiscal year.	Fine ounces.	Cost.	Average price per fine ounce.	Bullion cost of a silver dollar.
1878	10, 809, 350. 58	$13, 023, 268. 96	$1. 2048	$0. 9318
1879	19, 248, 086. 09	21, 593, 642. 99	1. 1218	. 8676
1880	22, 057, 862. 64	25, 235, 081. 53	1. 1440	. 8848
1881	19, 709, 227. 11	22, 327, 874. 75	1. 1328	. 8761
1882	21, 190, 200. 87	24, 054, 480. 47	1. 1351	. 8779
1883	22, 889, 241. 24	25, 577, 327. 58	1. 1174	. 8642
1884	21, 922, 951. 52	24, 378, 383. 91	1. 1120	. 8600
1885	21, 791, 171. 61	23, 747, 460. 25	1. 0897	. 8428
1886	22, 690, 652. 94	23, 448, 960. 01	1. 0334	. 7992
1887	26, 490, 008. 04	25, 988, 620. 46	. 9810	. 7587
1888	25, 386, 125. 32	24, 237, 553. 20	. 9547	. 7384
1889	26, 468, 861. 03	24. 717, 853. 81	. 9338	. 7222
1890	27, 820, 900. 05	26, 899, 326. 33	. 9668	. 7477
1891	2, 797, 379. 52	3, 049, 426. 46	1. 0901	. 8431
Total	291, 272, 018. 56	308, 279, 260. 71	1. 0583	. 8185

Amount, Cost, Average Price, and Bullion Value of the Silver Dollar of Silver Purchased under Act of July 14, 1890.

Fiscal years.	Fine ounces.	Cost.	Average price per fine ounce.	Bullion cost of a silver dollar.
1891	48, 393, 113. 05	$50, 577, 498. 44	$1. 0451	$0. 8083
1892	54, 355, 748. 10	51, 106, 607. 96	. 9402	. 7271
1893	54, 008, 162. 60	45, 531, 374. 53	. 8430	. 6520
1894	11, 917, 658. 78	8, 715, 521. 32	. 7313	. 5656
Total	168, 674, 682. 53	155, 931, 002. 25	. 9244	. 7150

AMOUNT, COST, AVERAGE PRICE, AND BULLION VALUE OF THE SILVER DOLLAR OF SILVER PURCHASED UNDER THE ACTS OF FEBRUARY 12, 1873, JANUARY 14, 1875, FEBRUARY 28, 1878, AND JULY 14, 1890.

Act authorizing.	Fine ounces.	Cost.	Average price per fine ounce.	Bullion cost of a silver dollar.
February 12, 1873	5, 434, 282. 00	$7, 152, 564. 00	$1. 3162	$1. 0180
January 14, 1875	31, 603, 906. 00	37, 571, 148. 00	1. 1888	. 9194
February 28, 1878	291, 272, 018. 56	308, 279, 260. 71	1. 0583	. 8185
July 14, 1890	168, 674, 682. 53	155, 931, 002. 25	. 9244	. 7150
Total	496, 984, 889. 09	508, 933, 974. 96	1. 0240	. 7920

STATEMENT SHOWING THE AMOUNT AND COST OF SILVER BULLION PURCHASED UNDER ACT OF JULY 14, 1890, AND USED IN THE COINAGE OF STANDARD SILVER DOLLARS, WASTED AND SOLD IN SWEEPS, NUMBER OF DOLLARS COINED AND SEIGNIORAGE ON SAME, FROM AUGUST 13, 1890, TO JANUARY 1, 1899.

Disposition.	Fine ounces.	Cost.
Total amount purchased and cost of same	168, 674, 682. 53	$155, 931, 002. 25
Used in coinage to January 1, 1899	67, 288, 746. 94	64, 200, 450. 23
Wasted and sold in sweeps	63, 570. 37	62, 535. 64
Transferred to subsidiary silver bullion account	. 31	. 25
Total amount used	67, 352, 317. 62	64, 262, 986. 12
Balance on hand January 1, 1899	101, 322, 364. 91	91, 668, 016. 13
Total	168, 674, 682. 53	155, 931, 002. 25
Silver dollars coined		86, 999, 592. 00
Seigniorage on same		22, 799, 141. 77

BALANCE OF SILVER BULLION PURCHASED UNDER ACT OF JULY 14, 1890, ON HAND AT EACH MINT JANUARY 1, 1899.

Mints.	Fine ounces.	Cost.
Philadelphia	99, 436, 768. 76	$89, 969, 696. 03
San Francisco	328, 760. 27	292, 820. 87
New Orleans	1, 546, 646. 33	1, 397, 341. 74
Carson	10, 189. 55	8, 157. 49
Total	101, 322, 364. 91	91, 668, 016. 13

IMPORTS AND EXPORTS OF GOLD AND SILVER.

IMPORTS OF GOLD.—The total value of gold imported into the United States during the calendar year 1898 was $158,142,993, an increase of $124,086,938 over the imports reported for the year 1897.

The value of gold bullion imported was $47,574,216, of which amount $30,251,199 came from Great Britain; $2,548,466 from Mexico; $2,503,030 from France; $9,899,533 from British possessions in North America; $1,254,689 from British Australasia; $459,974 from Germany; $408,046 from Central America; $180,062 from South America; and the remainder principally from the West Indies.

The value of foreign gold coin imported was $67,007,647, of which $26,167,171 came from British Australasia; $13,093,526 from Great Britain; $11,912,562 from France; $6,730,512 from Japan; $5,901,449 from Germany; $1,914,293 from the West Indies; and the remainder from Central and South America.

The value of foreign gold ores imported was $635,473, of which $632,242 came from Mexico.

The value of gold contained in foreign base bullion and ores imported was $4,749,353, of which $1,116,970 was in copper matte; $1,673,405 in lead bullion; and $1,958,978 in silver lead ores received principally from British Columbia and Mexico.

The value of United States gold coin returned to this country was $38,176,304, of which $15,310,353 came from Great Britain; $13,078,646 from France; $5,380,000 from Ontario and Quebec; $2,066,627 from Germany; $1,590,181 from the West Indies; $315,169 from Mexico; $180,000 from Hawaii; and the remainder from Central and South America.

The following table shows the total gold imports for the year:

GOLD IMPORTS, CALENDAR YEAR 1898.

Description.	Amount.
Foreign bullion	$47,574,216
Foreign coin	67,007,647
Gold contained in copper matte	1,116,970
Gold contained in lead bullion	1,673,405
Gold contained in silver lead ore	1,958,978
Gold ore	635,473
Total	119,966,689
United States coin	38,176,304
Total	158,142,993

GOLD EXPORTS.—The total value of gold exported from the United States during the calendar year 1898 was $16,308,675, the domestic gold being valued at $5,296,709 and the foreign at $10,913,387, a decrease of $18,358,568 reported for the previous calendar year.

The value of gold bars manufactured at the United States Government institutions exported was $122, the amount going to British Columbia and Quebec.

The value of other domestic gold bars exported was $121,305, of which $62,700 went to England; $54,405 to Quebec; and $4,200 to Hongkong.

The value of domestic gold coin exported was $5,093,586, of which $3,519,481 went to Canada; $702,215 to Hawaii; $545,194 to West Indies; $164,775 to South America; and $76,895 to Central America.

The value of gold contained in domestic copper matte and base bullion exported was $81,696, which went to Germany and England.

The value of foreign gold bullion exported was $27,083, of which $27,000 went to England.

The value of foreign gold coin exported was $10,871,078, of which $9,909,213 went to Cuba; $789,793 to Quebec and Ontario, and $118,153 to Bermuda.

The value of gold contained in foreign base bullion exported was $15,226, all of which went to England.

The following table shows the total gold exports during the year:

GOLD EXPORTS, CALENDAR YEAR 1898.

Description.	Amount.
United States mint bars	$122
Other bullion	121,305
United States coin	5,093,586
Gold in base bullion and copper matte	180,175
Gold ore	100
Total domestic	5,395,288
Foreign bullion reexported	27,083
Foreign coin reexported	10,871,078
Gold in foreign base bullion	15,226
Total foreign	10,913,387
Total gold exports	16,308,675

SILVER IMPORTS.—The total value of silver imported during the calendar year 1898 was $29,030,484, being $4,149,979 less than imported last year.

The commercial value of silver bullion imported was $3,212,760, of which $2,929,297 came from Mexico; $219,094 from Honduras; and $29,724 from Great Britain.

The value of foreign silver coin imported was $5,596,363, of which $4,523,846 came from Mexico; $223,625 from Nicaragua; $197,341 from British Honduras; $175,582 from Columbia; and $145,361 from Haiti.

The value of United States coin returned to this country was $117,313, of which amount $76,645 came from British possessions in North America, and the remainder from the West Indies, Central and South America.

The value of silver contained in ore imported was $210,450, which came from Mexico.

The commercial value of silver contained in copper matte, lead bullion, and silver lead ore imported amounted to $19,893,598, nearly all of which came from Mexico and British Columbia.

The following table shows the quantity and value of the importation of base bullion and ores:

IMPORTATION OF BASE BULLION AND ORE, CALENDAR YEAR 1898.

Description.	Value.
Lead ore	$2,590,150
Silver lead ore	9,845,171
Copper matte	5,718,947
Base bullion	11,210,040
Total	29,364,308

Metallic contents.	Value.
Gold	$4,749,353
Silver	19,893,598
Lead	1,673,902
Copper	3,047,455
Total	29,364,308

The following table shows the total silver imports during the year:

SILVER IMPORTS, CALENDAR YEAR 1898.

Description.	Value.
Foreign bullion	$3,212,760
Foreign coin	5,596,363
Foreign ore (commercial value)	210,450
Silver in copper matte	224,559
Silver in lead bullion	12,618,098
Silver in silver-lead ore	7,050,941
Total foreign	28,913,171
United States coin	117,313
Total silver imports	29,030,484

SILVER EXPORTS.—The total value of silver exported during the calendar year 1898 was $54,352,656, of which $48,019,718 was the value of domestic and $5,877,036 the value of foreign material, being $5,571,321 less than the value reported for 1897.

The value of domestic silver bars manufactured at the United States Government institutions was $211,090, of which $176,711 went to Mexico, $18,300 to England, and $16,079 to Ontario and Quebec. Other silver bars of domestic origin amounting to $47,364,804 were exported, of which $42,419,150 went to Great Britain, $1,905,100 to Hongkong, $1,208,122 to France, $932,696 to Mexico, $419,400 to British East Indies, and $300,578 to China.

The value of silver in foreign base bullion exported was $47,508, which went to England.

The value of silver ore exported was $50,201, nearly all of which went to British Columbia.

The commercial value of silver in base bullion and copper matte exported was $123,400, the greater part of which went to England.

The value of foreign silver bullion exported was $119, which went to Quebec and Ontario.

The value of foreign silver coins exported was $5,829,409, of which $2,571,903 went to England, $2,302,519 to Hongkong, $458,875 to Santo Domingo, $120,132 to Guatemala, and the remainder to various countries.

The following table shows the total exports during the year:

SILVER EXPORTS, CALENDAR YEAR 1898.

Description.	Amount.
United States bars	$211,090
Other bullion	47,364,804
United States coin	270,223
Silver contained in base bullion and copper matte	579,302
In silver ore	50,201
Total domestic	48,475,620
Foreign bullion reexported	119
Foreign coin reexported	5,829,409
Silver in foreign base bullion	47,508
Total foreign	5,877,036
Total silver exports	54,352,656

In the above tables, the items "exported in base bullion, in pig copper, copper matte, etc., gold, $180,175, silver, $579,302," ascertained by the Bureau of the Mint from exporters, has been substituted for the amounts reported to the Bureau by the collectors of customs, for reasons stated in the following letters from collectors of customs at the ports of New York and Baltimore and from the Superintendent of the Assay Office at New York:

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of Baltimore, Md., March 6, 1899.

SIR: In compliance with your letter of the 3d instant, I have the honor to state that the records of this office do not indicate that there were any gold and silver contained in pig copper, copper matte, etc., exported from this port during the calendar year ended December 31, 1898.

Respectfully, yours,

WM. F. STONE, *Collector.*

HON. GEO. E. ROBERTS,
Director of the Mint, Treasury Department, Washington, D. C.

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of New York, March 9, 1899.

SIR: In reply to your letter of the 3d instant, asking to be furnished with a statement showing the amount of gold and silver contained in pig copper, copper matte, etc., exported from this port during the calendar year ending December 31, 1898, I would state that the amount of gold and silver contained therein was as follows:

	Ounces.
Silver	241, 941
Gold	3, 600

Very respectfully,

G. R. BIDWELL, *Collector.*

DIRECTOR OF THE MINT,
Washington, D. C.

THE UNITED STATES ASSAY OFFICE AT NEW YORK,
SUPERINTENDENT'S OFFICE,
March 2, 1899.

STATEMENT SHOWING THE AMOUNT OF GOLD AND SILVER CONTAINED IN PIG COPPER AND COPPER MATTE EXPORTED FROM THE PORT OF NEW YORK DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

Description.	Gross weight.	Gold.	Silver.
	Avoirdupois pounds.	*Fine ounces.*	*Fine ounces.*
Pig copper	29, 819, 000	5, 243	948, 950
Copper matte	1, 142, 000	3, 473	32, 918
Total	30, 961, 000	8, 716	981, 868

ANDREW MASON, *Superintendent.*

DIRECTOR OF THE MINT,
Washington, D. C.

In the Appendix will be found tables exhibiting the imports and exports of the precious metals, by customs districts and by countries, for the calendar year 1898.

MOVEMENT OF GOLD FROM THE UNITED STATES.

The superintendent of the United States assay office at New York has kindly prepared the following tables, giving exports of gold through the port of New York during the calendar year 1898:

STATEMENT OF UNITED STATES GOLD COIN AND GOLD BULLION EXPORTED TO EUROPE FROM THE PORT OF NEW YORK DURING THE CALENDAR YEAR 1898.

Date.	Country.	Value.	Rate of exchange.
January 18	England	$1, 900	4. 84¾
Do	do	63, 468	4. 84¾
February 21	do	410	4. 85⅕
March 5	Germany	1, 650	4. 84¼
Do	England	68, 223	4. 84¼
April 16	do	100	4. 83½
June 28	do	3, 650	4. 85¾
September 10	Germany	3, 240	4. 84½
	Total	142, 641	....

RECAPITULATION OF GOLD EXPORTS TO EUROPE.

Description.	England.	France.	Germany.	Grand total.
United States coin	$3, 850			$3, 850
Foreign coins		$8, 000		8, 000
Bullion (unknown)			$138, 791	138, 791
Total	3, 850	8, 000	138, 791	150, 641

During the same period there was shipped to West Indies, Mexico, Central and South America, the following, viz:

United States coin	$752, 649
Foreign coins	10, 070, 838
Total	10, 823, 487
Grand total of exports	10, 974, 128

The imports of gold during the same period were as follows, viz: From Europe:

United States coin	$29, 971, 708
Foreign coins	30, 883, 167
Bars (United States assay office at New York)	510, 355
Foreign bullion	32, 761, 115
Total	94, 126, 345
From other ports:	
United States coin	1, 795, 151
Foreign coins	1, 764, 163
Foreign bullion	976, 818
Total	4, 536, 132
Grand total of imports	98, 662, 477

THE MARKET FOR SILVER DURING THE CALENDAR YEAR 1898.

The course of silver in 1898 fluctuated between 25d. and $28\frac{3}{8}$d. per ounce, standard (0.925 fine). At the beginning of the year the price was $26\frac{5}{8}$d.

About the middle of February there were rumors of an intention to raise the duty on imports of silver into India, in consequence of which the price rapidly declined, reaching 25d. on March 3. At this price large speculative sales were made, after which the price continued to rise until March 25, when there was a reaction from $26\frac{1}{16}$ to $25\frac{9}{16}$. The decline was momentary and the price rose to $26\frac{5}{16}$ on April 30. About the middle of May Spain began to purchase, and with few interruptions of short duration, continued to buy bars until into the month of November. Its purchases represented about £4,000,000. The effect of these purchases was to raise the price to $28\frac{5}{16}$d., which it touched on the 21st of September and the 1st of November.

During the last two months of the year the rates were lower and new purchases were made for India and the Straits.

The shipments to the East were less in 1898 than in 1897. They amounted to £5,500,000.

Purchases by Spain caused a rise of the price and more than once prevented demands for India and China. The large Spanish sales increased the shipments to the Continent of Europe, and the total exports from London reached £15,500,000.

HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION AND VALUE OF A FINE OUNCE EACH MONTH DURING THE CALENDAR YEAR 1898.

Months.	Highest.	Lowest.	Average price per ounce, British standard 0.925.	Equivalent value of a fine ounce with exchange at par ($4.8665).	Average monthly price at New York of exchange on London.	Equivalent value of a fine ounce based on average monthly price and average rate of exchange.	Average monthly New York price of fine bar silver.
1898.	*Pence.*	*Pence.*	*Pence.*				
January	$26\frac{7}{8}$	$26\frac{1}{8}$	26. 2000	$0. 57433	$4. 8497	$0. 57578	$0. 58035
February	$26\frac{1}{4}$	$25\frac{5}{8}$	25. 8984	. 56772	4. 8525	. 56606	. 54576
March	26	25	25. 4583	. 55807	4. 8405	. 55509	. 55990
April	$26\frac{3}{8}$	$25\frac{11}{16}$	25. 9453	. 56875	4. 8377	. 56543	. 56961
May	$26\frac{7}{8}$	$25\frac{7}{8}$	26. 3150	. 57685	4. 8557	. 57554	. 58015
June	$27\frac{1}{2}$	$26\frac{11}{16}$	27. 0932	. 59392	4. 8582	. 59274	. 59644
July	$27\frac{7}{8}$	27	27. 3202	. 59889	4. 8567	. 59768	. 60400
August	28	$27\frac{1}{8}$	27. 4831	. 60246	4. 8535	. 60087	. 60430
September	$28\frac{3}{8}$	$27\frac{11}{16}$	28. 0456	. 61479	4. 8432	. 61209	. 61620
October	$28\frac{1}{4}$	$27\frac{9}{16}$	27. 9010	. 61162	4. 8476	. 60931	. 61346
November	$28\frac{5}{16}$	$27\frac{9}{16}$	27. 9332	. 61232	4. 8546	. 61093	. 61505
December	$27\frac{5}{8}$	$27\frac{1}{4}$	27. 4375	. 60146	4. 8460	. 59892	. 60254
Average	*a* $28\frac{3}{8}$	*a* 25	26. 9192	. 59010	4. 8496	. 58837	. 59064

a Denotes highest and lowest for the year.

STOCK OF MONEY IN THE UNITED STATES.

The stock of United States coin in the United States on January 1, 1899, was as follows:

OFFICIAL TABLE OF STOCK OF UNITED STATES COIN IN THE UNITED STATES JANUARY 1, 1899.

Items.	Gold.	Silver.	Total.
Estimated stock of coin January 1, 1898	$699, 966, 924	$531, 551, 218	$1, 231, 518, 142
Coinage calendar year 1898	77, 985, 758	23, 034, 033	101, 019, 791
Net imports of United States coin, calendar year 1898	33, 082, 718		33, 082, 718
Total	811, 035, 400	554, 585, 251	1, 365, 620, 651
Loss:			
Net exports of United States coin, calendar year 1898		*a* 152, 910	152, 910
United States coin melted for recoinage, calendar year 1898	1, 330, 741	8, 529, 783	9, 860, 524
United States coin taken out in war ships and transports for disbursement in Cuba, Porto Rico, and the Philippine Islands, not recorded at the custom-houses, calendar year 1898	2, 455, 330	*b* 497, 286	2, 952, 616
United States coin used in the arts, calendar year 1898 (estimated)	1, 500, 000	100, 000	1, 600, 000
Total	5, 286, 071	9, 279, 979	14, 566, 050
Estimated stock of coin January 1, 1899	805, 749, 329	545, 305, 272	1, 351, 054, 601

a Of this amount $50,000 were in standard silver dollars.

b Of this amount $185,000 were in standard silver dollars.

NOTE.—Of the stock of silver coins on January 1, 1899, $470,009,857 were in dollars and $75,295,415 were in subsidiary coins.

In the above table the item, "United States coin melted for recoinage," the amounts represent nominal or face value.

In the Appendix a table will be found giving in detail the source from which these amounts were obtained.

The following table gives the value of the gold and silver bullion owned by the Government on January 1, 1899:

GOLD AND SILVER BULLION IN MINTS AND ASSAY OFFICES, JANUARY 1, 1899.

Metal.	Cost value.
Gold	$140, 049, 459
Silver	93, 563, 961
Total	233, 613, 420

The number of fine ounces of silver on deposit with the Mercantile Safe Deposit Company, New York City, on January 1, 1899, was 321,021, valued at $192,613.

Including the amount of silver bullion held by the Mercantile Safe Deposit Company, the total metallic stock on hand January 1, 1899, was as follows:

METALLIC STOCK, JANUARY 1, 1899.

Coin and bullion.	Amount.
Gold	$945, 798, 788
Silver (including amount held by Mercantile Safe Deposit Co.)	639, 061, 846
Total	1, 584, 860, 634

The metallic stock on hand January 1, 1898, was as follows:

METALLIC STOCK, JANUARY 1, 1898.

Coin and bullion.	Amount.
Gold	$745, 245, 953
Silver (bullion in mints and held by Mercantile Safe Deposit Co.)	635, 310, 064
Total	1, 380, 556, 017

During the calendar year the increase in the stock of gold was $200,552,835, and silver $3,751,782, a total increase of $204,304,617.

The location of the stock of metallic and paper money in the United States on January 1, 1899, was as follows:

LOCATION OF THE MONEYS OF THE UNITED STATES JANUARY 1, 1899.

Moneys.	In Treasury.	Outside of Treasury.	Total.
Metallic:			
Gold bullion	$140, 049, 459	....	$140, 049, 459
Silver bullion	93, 563, 961	$192, 613	93, 756, 574
Gold coin	141, 070, 422	664, 678. 907	805, 749, 329
Silver dollars	405, 538, 868	64, 470, 989	470, 009, 857
Subsidiary silver coin	5, 965, 706	69, 329, 709	75, 295, 415
Total	786, 188, 416	798, 672, 218	1, 584, 860, 634
Paper:			
Legal-tender notes, old issue	35, 406, 252	311, 274, 764	346, 681, 016
Legal-tender notes, act July 14, 1890	1, 655, 123	94, 868, 157	96, 523, 280
Gold certificates	1, 610, 070	35, 198, 929	36, 808, 999
Silver certificates	7, 127, 916	392, 302, 588	399, 430, 504
National-bank notes	5, 491, 406	238, 326, 464	243, 817, 870
Currency certificates	220, 000	20, 575, 000	20, 795, 000
Total	51, 510, 767	1, 092, 545, 902	1, 144, 056, 669
Grand total	837, 699, 183	1, 891, 218, 120	2, 728, 917, 303

WORLD'S INDUSTRIAL CONSUMPTION.

In 1893 this Bureau inaugurated the attempt to obtain, through the United States representatives abroad, official estimates from the various countries of the consumption of gold and silver in the arts and industries. The results were very incomplete but sufficient to encourage renewed efforts, and the interrogatories have been repeated annually since.

The questions sent out by this Bureau for 1898 were as follows:

What was the weight of fine gold used in the industrial arts during the calendar year 1898?

What amount of this was new gold and what amount old gold?

What was the weight of fine silver used in the industrial arts during the calendar year 1898?

What amount of this was new silver and what amount old silver?

Most of the Governments addressed replied, as usual, that they had no information on this subject, but nearly all of the larger European countries made an estimate, or furnished data from which an estimate might be made. Nearly all the European countries maintain government bureaus where gold and silver articles are tested and their fineness stamped. From the quantity so registered some idea, even though an indefinate one, can be had as to the total consumption, although the bureaus take no account of the amounts consumed in chemical and scientific work.

Austria-Hungary, France, Switzerland, Germany, Brazil, Portugal, Netherlands, Paraguay, and Sweden give estimates as to the total consumption, while the first four attempt to apportion this between old and new gold employed.

The calculation would be very unsatisfactory if it were not that the returns for a few of the countries reporting have been obtained after systematic and exhaustive investigation. These furnish a criterion for judging the reports for other countries. Germany made during the year 1898 an exhaustive inquiry upon the consumption of gold, and reached the conclusion that the total industrial consumption now approximated 16,000 kilograms per year, or $10,633,600, and that one-third of this is supplied by old material other than coin. The estimate made by this Bureau for industrial consumption in the United States last year is $11,400,000, net. These calculations, with those furnished by such important countries as Great Britain, France, and Austria-Hungary, furnish a basis for the belief that the total estimate for the world is not too low and probably approximately correct.

The inquiry is very much complicated by the element of old material annually melted down and reentering consumption. The annual production of new gold is obtained with reasonable accuracy, but to what extent this supply is supplemented by the old stock is a question not readily answered. The Austrian estimate for that country puts the old gold reentering use at 26 per cent of the industrial consumption. The new German estimate is 33 per cent. The United States estimate for 1898 is about 16 per cent.

Naturally, in a new and gold-producing country like the United States, the proportion of old gold would be smaller than in old and non-producing or small-producing countries.

Dr. Soetbeer estimated the average annual consumption of old gold in Europe at about 20 per cent of the total consumption; but his figures, though they have been shown to be remarkably accurate so far as total consumption is concerned, seem to have been too low in regard to old gold.

Following will be found the verbatim replies of all countries that furnished any estimate as to their consumption in 1898, together with a discussion of the figures and such other matter bearing on the question as has seemed to be of value:

From Argentina.—"No statistics of any kind are to be had."

From Australasia.—New South Wales: "No information obtainable." New Zealand: "No statistics." Tasmania: "There are no means of arriving at an estimate. The quantities would be small in a community of 170,000 not wealthy." Victoria: "Can not be ascertained." South Australia: "Can not ascertain; no statistics are kept by manufacturers."

From Austria.—"Fine gold, new and old, used in the industrial arts during the calendar year 1898:" "The jewelry, fancy articles, wire, etc., brought to the imperial stamping office in Vienna during the year 1898 to be stamped show the domestic consumption of gold to have been as follows:

Items.	Gross weight.	At the average standard of 1897.	In fine gold.
	Kilograms.	*Kilograms.*	*Kilograms.*
Domestic articles of gold	4,271.849	582.941	2,488.527
Domestic, double (plated) wares—that is, the gold placed on the same			3.083
Wire—that is, the amount of gold placed upon the silver wire (shown in answer below for silver)			37.741
Total			2,529.351

"No data are given, as yet, showing the amount of gold consumed during the year 1898 for other industrial uses, especially in the gilding by fire and galvanism.

"Of the articles of gold brought to the imperial stamping office in Vienna to be stamped (as shown above), it is assumed that 26 per cent were manufactured of old articles of gold; and this assumption would show that there were used in the year 1898 1,871.720 kilograms, 1,000/1,000 new gold, and 657.631 kilograms old gold.

"Fine silver, new and old, used in the industrial arts during the calendar year 1898:" "The articles brought to the imperial stamping office in Vienna during the year 1898 to be stamped show the domestic consumption of silver to have been as follows:

Items.	Gross weight.	At the average standard of 1897.	In fine silver.
	Kilograms.	*Kilograms.*	*Kilograms.*
Domestic articles of silver	55,823.146	794.821	44,369.409
Domestic wire			2,590.423
Total			46,959.832

"No data are given, as yet, showing the amount of silver consumed during the year 1898 for other industrial uses.

"Of the articles of silver brought to the imperial stamping office in Vienna to be stamped during the year 1898, it is assumed that 20 per cent were manufactured of old articles of silver, and this assumption would show that there were used 37,567.866 kilograms, 1,000/1,000 new silver, and 9,391.966 kilograms, 1,000/1,000 old silver."

From Hungary.—"No data are on hand showing the amount of gold and silver used for industrial purposes. There were presented at the royal Hungarian stamping office for the purpose of being officially stamped:

A.—*Domestic goods.*

	Kilograms.
(1) Gold ware	1,415.394
(2) Silverware	12,465.168
(3) Gilt wire	516.926
(4) Silver wire	265.396

B.—*Foreign goods.*

(5) Foreign gilt wire	1.420
(6) Foreign watches	248.660
(7) Other foreign gold ware	110.296
(8) Foreign silver watches	1,411.160
(9) Other foreign silverware	1,744.279

"In 1897 an amount equal to 17 per cent in gold and 24 per cent in silver, of the articles stamped (as above), was added for "other industrial purposes." Following this custom, the total net consumption, showing additions and deductions, is here given:

Items.	Kilograms, fine.	
	Gold.	Silver.
Austria	2,529.351	46,959.832
Hungary	2,292.696	15,886.003
Total	4,822.047	62,845.835
In addition, for other industrial purposes	819.748	15,083.000
Total consumption	5,639.795	77,928.835
Less "old material"	1,466.346	15,585.767
Net consumption	4,173.449	62,343.068
Coining value (United States money)	$2,773,674	$2,590,978

From Brazil.—"Gold, estimated at 1,000 kilograms. No information as to new and old gold. Silver, no information."

This estimate, sent in by the United States minister to Brazil, is the difference between his estimate of the production of the country and the declared value of the custom-house exports. The Government collects no statistics of either production or consumption, and there is reason to believe that the production figures sent in by Minister Bryan do not represent fine gold, while custom-house valuation of gold exports are not strictly reliable.

If, however, the gold product be taken as 0.750 fine (as it was reported a year ago), and the exports as approximately correct, the excess of production over exports will be about 750 kilograms, which is apparently large enough to represent the consumption of a comparatively new country like Brazil.

From Belgium.—"Since the law of June 5, 1898, granting the privilege of the free working of gold and silver, it is impossible to give the figures for the weight of these metals used in the industrial arts."

This Bureau estimated Belgium and the Netherlands together, in former years, following Dr. Soetbeer's estimate, with an addition for the increased use since the date he made it. The estimate for both was 3,100 kilograms. If some 557 kilograms are set off for the Netherlands, as will hereafter appear, there will remain 2,543 for Belgium alone, at which figure it is stated in the table.

Silver: Professor Lexis estimated the silver consumption of Belgium at 20,000 kilograms in 1895, and his figures are here repeated.

From Costa Rica.—"Unknown."

From Denmark.—"Minister of finance not able to give any information concerning the amount of gold and silver, new and old, used in the industrial arts during 1898."

From Ecuador.—"Not ascertainable; very insignificant."

From Egypt.—"No records." In the absence of any official information regarding the uses of gold and silver in the arts during the year the estimate for 1897 is repeated for 1898.

From France.—"About 22,800 kilograms of gold. No information as to new or old gold. About 207,800 kilograms of silver. No information as to new or old silver."

Dr. Soetbeer, in his estimates for industrial consumption in France, from 1871 to 1880, estimated that 20 per cent of it was old gold. This gives 18,240 kilograms of new material for the gold consumption, and for the silver, 155,850 kilograms, deducting 25 per cent for old material.

From Germany.—Gold: "Returns thus far have been made only for the years 1896 and 1897." Silver: "Owing to lack of official investigation it is impossible to answer these questions."

From official data furnished by the German Government it appears that the amount of new gold and coin used in the industrial arts in that country during the calendar year 1897 was 30,000,000 marks, equivalent to 10,743 kilograms of fine gold, which is less than the amount of new gold heretofore estimated to have been used. As this estimate was made after careful investigation by the German Government, the figures are also adopted for the calendar year 1898.

The silver is estimated to have been the same for 1898 as in 1897.

INDUSTRIAL CONSUMPTION OF GOLD IN GERMANY.

[Die Gluckauf, Essen, March 11, 1899, p. 210.]

Official information has already been compiled in regard to the consumption of gold in the industrial arts in Germany in the years 1896 and 1897, and the results will soon be published in the Statistical Quarterly of the German Empire. Only round numbers are given, since the returns are not complete and must be further checked.

An average of 45,000,000 marks of gold was consumed for this purpose in each of the two years, corresponding to a weight of 16,000 kilograms, fine. More than half of this sum, amounting to some 25,000,000 marks, was obtained from melting down coins, and thus some 20,000,000 marks of German legal tender gold was withdrawn from circulation. From foreign coin some 5,000,000 marks were obtained (not including coin melted in the mints), the face value of the coin being some 6,000,000 or 8,000,000 marks.

German refineries melt the coin and convert it, like other domestic and foreign gold holding material, into the forms required by the arts. This refinery gold to a value of about 20,000,000 marks is annually consumed in Germany.

This information confirms the estimates of the well known Professor Soetbeer and gives a fresh indorsement to the accuracy of that distinguished scholar. According to Soetbeer's figures, the industrial consumption of Germany in 1885 was 15,000 kilograms. It is somewhat surprising that the consumption should increase only 1,000 kilograms in ten years. But we must remember that heavy old-fashioned jewelry is nowadays replaced with much lighter ornaments set with precious stones, and that the export of gold ware has decreased rather than increased.

On one point only do the foregoing figures fail to agree with those of Soetbeer. The average for 1896 and 1897 puts the value of the old gold melted down and reconsumed at about 15,000,000 marks, or one-third of the whole, while Soetbeer estimated it at only one-fifth.

INDUSTRIAL CONSUMPTION OF GOLD, 1896 AND 1897.

Under date of February 23, 1899, the Bureau of the Mint received from the imperial statistical office, at Berlin, some pages from the quarterly statistical abstract of the Empire (Vierteljahrsheften zur Statistik des Deutschen Reichs), giving the results of the inquiries made by the German Government concerning the industrial employment of gold.

The following is a translation of the pages mentioned:

"The wish has been expressed by many that the industrial consumption of the precious metals should be made the subject of official inquiry in Germany, as it has been in other States. In response to that wish an exhaustive discussion of the matter took place in the spring of 1897, in which representatives of the Imperial Government and of the governments of the Federal States, as well as a large number of experts and manufacturers from different parts of the German Empire, participated. It was decided to institute an official inquiry at first, only as to the industrial consumption of gold in the years 1896 and 1897. A circular of interrogatories was prepared and sent through the chamber of commerce, or other suitable agencies, to manufacturers who worked gold, in order that the interrogatories might be answered. Special circulars of interrogatories were, at the same time, prepared to be sent to the refineries in Germany. In both sets of interrogatories care was taken to provide for an answer to the question, so important in determining the monetary condition of the country, 'How many gold coins were melted down in the two years?'

"The interrogatories intended to be sent to establishments in which gold is prepared to be worked into articles of art, and for other industrial purposes, asked information relative to the value of the gold melted in the years 1896 and 1897; how much of it was obtained from gold coins of German mintage; how much from gold coins of foreign mintage, and how much from bar gold; also, how much of this gold was employed in the manufacture of gold ware, ornaments, gold leaf, settings, etc.; how much in galvanization; how much in the gilding of porcelain or glass; how much in photography, dentistry, etc.

"The interrogatories for the refineries which separate gold from gold ores and other auriferous material, and prepare it for further working, embraced questions as to the value of the gold separated from German and foreign gold coins and other material, domestic and imported, in the two years, and also as to the value of the quantities so obtained sold to the Imperial Bank or in Germany, and the value of the preparations manufactured therefrom sold in Germany or foreign countries.

"The data furnished by the refineries relative to the amount of metal disposed of by them in Germany (apart from that sold to the Imperial Bank) were intended as a check on the statements of the other establishments, it being assumed that broken gold was unsuitable for direct industrial employment, and that therefore all the gold worked for industrial purposes, with the exception of gold coins, had to be obtained from the parting institutions.

"The refineries readily filled out and returned the list of interrogatories sent them, whereas the establishments that manufacture gold ware, in many cases, neglected to fill them out. This is accounted for in part by the fact that it was feared that the data asked for would be used for purposes of taxation, and in part by the fact that for other reasons it was considered desirable not to reveal the extent of the business done. In many cases the excuse was made that no preparation had been made to give the data asked for, and that no data could be given because no entries as to the quantity of gold worked existed.

"In all these districts, however, in which the manufacture of gold ware is carried on on a large scale the failure to fill out the answers to the interrogatories has been made up for by the estimates of experts, so far as the quantity of the gold worked is concerned. In the rest of Germany it was for the most part only small establishments that failed to give the information required, and as a rule only gold workers who obtain the finished articles which they sell from larger manufacturers, and who themselves melt only small quantities of gold for repairs. Photographers and dentists agreed in saying that they obtained the gold preparations used by them almost exclusively from parties engaged in the trade.

"The gaps that can not be filled up by the estimates of experts are not great enough to make the information obtained unserviceable. Only it must be borne in mind, when one wished to reach a result in any way satisfactory, that one must operate only with large round sums, and that the small items which have not been embraced in the aggregate may, on account of their large numbers, constitute a not unimportant total.

"This much being premised, the following questions may be satisfactorily answered, while it is impossible to distinguish the character or class of gold wares manufactured from the gold obtained for industrial uses from the sources mentioned here:

"1. How much coined gold was melted down during the two years in question (1896 and 1897), and how many German gold coins thereby ceased to serve the purpose of a medium of payment?

"2. How much other gold, and

"3. How much gold in the aggregate was worked for industrial purposes in Germany in both years?

THE WORKING OF COINED GOLD.

"According to the data at hand, to which the estimates of experts have been added where no positive data were obtainable, there were melted in Germany for use in the arts and for other industrial purposes:

Items.	1896.	1897.
	Marks.	*Marks.*
German gold coins of the value of	17,700,000	17,500,000
Foreign gold coins of the value of	3,900,000	4,400,000

"The German refineries worked:

Items.	1896.	1897.
	Marks.	*Marks.*
German gold coins of the value of	200,000	300,000
Foreign gold coins of the value of	1,300,000	2,600,000

"According to this, German gold coins of the value in round numbers of 18,000,000 marks were taken from the circulation in each of these years, by being melted down (apart from the gold coin melted down in the mints). If, however, the large number of persons who at least melted gold for the making of repairs, and if it be further borne in mind that a great many gold coins were used for this purpose, German gold coins for the most part, as foreign gold coins are not so easily obtainable, we shall not go far astray in estimating the German gold coins melted down in 1896 and 1897 for other purposes than recoinage at 20,000,000 marks in round numbers. The value of the foreign gold coins melted down for a like purpose may be estimated at 6,000,000 to 8,000,000 marks.

WORKING OF OTHER GOLD.

"The data at hand and supplementary estimates show that gold other than coined gold was used in art and industry in 1896 to the amount of 17,500,000 marks, and in 1897 of 18,200,000 marks.

"The data furnished by the German refineries enable us to judge of the approximate correctness of these figures. The assumption that broken gold is unsuitable to direct and immediate working seems not entirely warranted, as in some of the answers to the interrogatories the working of such gold is mentioned; but these exceptional cases, in which there is question of only small quantities of metal, may be left out of consideration, and it may be taken for granted that, besides coined gold, only such gold as is obtained from these parting institutions is employed in industry.

"These institutions have supplied the following data:

"In German refineries there was worked other material than gold coins (with these compare the above):

Items.	1896.	1897.
	Marks.	*Marks.*
Material from Germany of the value of	16,000,000	15,800,000
Material from abroad of the value of	28,000,000	33,000,000
Material from Germany and abroad of the value of	6,600,000	8,300,000

"In the values last mentioned, which relate to the yield of auriferous silver ores, the value of the separated silver is not contained. Among the materials obtained from abroad there were, in 1896, gold bars of the value of 11,000,000 marks, and in 1897 of 15,100,000 marks.

"The materials which are given above as coming from Germany consist, to a small extent, of auriferous products of domestic smelters, but, for the most part, of gold obtained by the melting of old ornaments and other wares, and of refuse, or waste resulting from the manufacture of gold ware. The value of this gold—that is, of the part of the gold worked, not obtained from coins nor from importation, nor direct gold production—may be placed at 15,000,000 marks for each of the years 1896 and 1897.

"Of the products obtained the refineries sold:

Items.	1896.	1897.
	Marks.	*Marks.*
Metal to the Imperial and other banks	9,400,000	17,700,000
Metal to others in Germany	20,400,000	18,900,000
Metal to foreign countries	14,100,000	13,400,000
Preparations in Germany	2,400,000	2,500,000
Preparations in foreign countries	1,600,000	1,800,000

"The data relating to the metal sold in Germany is especially important in so far as it was not disposed of to banks, because the corresponding quantities of fine gold or alloys must have been employed in industrial uses in Germany.

"If we add to this the bar gold sold to manufacturers by the Imperial Bank we obtain for 1896 an amount of 20,700,000 marks, and for 1897 of 19,200,000 marks, or an average for both years of 20,000,000 marks as the value of the gold, other than coined gold, that went to German industry to be worked and that was doubtless actually worked by it.

TOTAL WORKING OF GOLD.

"From what has been said above it appears that, on an average, there was worked for industrial purposes in Germany in the years 1896 and 1897 German gold coins of the approximate value of 20,000,000 marks; foreign gold coins of the approximate value of 5,000,000 marks (after deduction of the coins melted by the refineries, as the gold prepared herefrom was employed in industry in some other form); other gold of the approximate value of 20,000,000 marks—a total, therefore, of 45,000,000 marks, representing a quantity of fine gold of 16,000 kilograms.

"What the share of the districts in which the largest establishments engaged in working the precious metals was is apparent from the fact that the consumption of gold in the Chamber of Commerce district of Pforzheim alone was valued at about 19,000,000 marks; in the Chamber of Commerce district of Hanau at over 5,000,000 marks; in the district of Mittelfranken at 4,000,000 marks; of Wurtemburg of about 3,500,000 marks, and Berlin and Charlottenburg of about 2,000,000 marks.

"Dr. Adolph Soetbeer, as early as 1885, basing his calculations on exhaustive inquiries, estimated the industrial consumption of gold in Germany at 15,000 kilograms, and in 1891 he stated that the same consumption had been estimated by an expert at 15,500 kilograms. The part of the gold consumed in industry not obtained from the melting of coins or from newly produced bar gold, but from old material, Soetbeer estimated at 20 per cent of the whole. Soetbeer's estimate of the industrial consumption of gold in Germany has been accepted by Professor Lexis and by the directors of the French and United States mints.

"Recently a French author, Mr. Beaure, estimated it at 18,000 kilograms, of which one-half was new material and the remainder obtained from the melting of coins and old material. It is certainly worthy of note that Dr. Soetbeer's very careful estimate of the gross consumption varies so little from that reached above, based on the inquiries set on foot relative to the industrial consumption of gold in Germany in 1896 and 1897. A comparison of the two shows that there has been but little increase in the industrial consumption of gold in Germany since 1885. In the most important district it has largely increased, but decreased very considerably in other districts. The decrease is due to a change of fashion. Recently heavy, unpolished gold ornaments have given place to lighter articles, set with precious stones. * * * As to the net industrial consumption of gold, it may be said that the share of old material in the gross consumption is at present considerably larger than it was estimated to be by Soetbeer. As seen above, the quantity of gold obtained in Germany from old ornaments and other articles melted down, and from the waste produced by the manufacture of gold ware, may be assumed to have averaged in 1896 and 1897 one-third of the total consumption of gold. Hence the net consumption, in the sense Dr. Soetbeer used the terms, was about 10,700 kilograms, five-sixths of which was obtained from the melting of gold coins."

From Great Britain.—"No information available."

The Bureau of the Mint has received no official information as to the industrial gold consumption of England in 1898, and recourse is therefore had, as last year, to an estimate of the same. According to the memorandum by Mr. W. Chandler Roberts-Austen, chemist and assayer, published in the reports of the deputy master of the royal mint, London, for 1893, 1894, 1895, 1896, 1897, and 1898, the number of ounces of gold wares assayed and marked by the wardens of the assay offices at Birmingham and Chester, from 1889 to 1898, inclusive, was as follows:

Year.	Birmingham.	Chester.	Total.
	Troy ounces.	*Troy ounces.*	*Troy ounces.*
1889	158,769	41,883	200,652
1890	193,426	51,166	244,592
1891	230,136	53,715	283,851
1892	228,018	55,789	283,807
1893	229,016	61,318	290,334
1894	223,759	62,442	286,201
1895	239,472	73,283	312,755
1896	283,423	97,281	380,704
1897	311,335	109,187	420,522
1898	333,741	130,480	464,221
Total	2,431,095	736,544	3,167,639

These figures are far from representing the total industrial gold consumption of the United Kingdom, which must, if we are to be guided by earlier estimates, be placed at, at least, twice these amounts for the years 1889–1898. Professor Lexis estimated it to have been in 1895 500,000 ounces, or about 15,500 kilograms net.

The wares stamped have increased 48 per cent since that date, equal to an increase of 7,440 kilograms, which, after deducting 25 per cent for old material, would give a net increase of 5,580 kilograms; hence, this Bureau estimates the consumption for 1898 at 21,080 kilograms.

No official estimate for silver has been received, and hence the report of Mr. Roberts-Austen of the amounts stamped at the assay office is given.

Years.	Birmingham.	Sheffield.	Chester.	Total.
	Ounces.	*Ounces.*	*Ounces.*	*Ounces.*
1894	1, 401, 449	496, 148	227, 250	2, 124, 847
1895	1, 796, 056	715, 248	311, 624	2, 822, 928
1896	2, 117, 622	922, 482	473, 887	3, 513, 991
1897	2, 303, 157	974, 477	556, 801	3, 834, 435
1898	2, 530, 019	1, 165, 017	592, 783	4, 287, 819

The total for 1898 corresponds to 133,369 kilograms. Professor Lexis estimated the net silver consumption of England in 1895 at 140,000 kilograms. The wares stamped have increased 52 per cent since that date, equal to an increase of 72,800 kilograms, or 54,600 kilograms *net* (deduction of 25 per cent being made for old material). Hence, this Bureau estimates the consumption for 1898 at 194,600 kilograms.

From Greece.—"Not known."

From Haiti.—"Impossible to find out."

From Italy.—"The production and employment of the precious metals not being controlled by any law, and free by the law of May 2, 1872, it is impossible to reply to these questions." The amount of gold and silver consumed in the arts in 1898, is assumed to have been the same as estimated by this Bureau for 1897.

From Japan.—"The amount of fine gold used in the industrial arts during the calendar year 1898 is unknown. The amount of new and old gold used as above is also unknown. The amount of fine silver used in the industrial arts during the calendar year 1898 is unknown; the amount of new and old silver used as above is unknown."

From the Netherlands.—"The quantity of fine gold used in industrial establishments in 1898 is estimated at 557 kilograms, fine gold;" amount of new or old gold, "can not be said." "The quantity of silver used in industrial establishments in 1898 is estimated at 9,066 kilograms, fine. Amount of new and old silver "can not be said."

The 557 kilograms gold and 9,066 kilograms silver, reported by Minister Newell, correspond to $370,182 for the gold and to $376,780 (coining value) for the silver.

Heretofore this Bureau has classed Belgium and the Netherlands together, chiefly for the sake of comparison with the estimates made by Dr. Soetbeer, that distinguished professor having classed them together. Belgium, however, has so far made no estimates whatever as to her consumption and, in view of the returns from the Netherlands, it seems unwise to continue this practice.

From Norway.—"It is not possible to give any information as to the weight and value of gold and silver used during the year in the industrial arts."

From Paraguay.—"Gold, 2½ kilograms, more or less; all sovereigns; silver, 100 kilograms, more or less; all new coins."

From Peru.—"It is not possible to determine the weight of fine silver and gold consumed in the industrial arts, there being no official control in Peru, such as exists in other countries, in reference to this matter."

From Portugal.—"Approximately 1,194 kilograms of fine gold in the arts; value not stated." Amount of new and old gold contained in the above "not specified." "Approximately 7,000 kilograms of silver used in the arts; value not stated. Amount of new and old silver unknown." Allowing 20 per cent for old material, we have 955 kilograms for new gold and coin and 5,600 kilograms for new silver.

From San Salvador.—"The office of statistics has been closed by decree, hence no information is obtainable."

From Siam.—"Not known."

From South Africa.—Cape Town: "Not ascertainable; none to speak of." South African Republic: "No statistics whatever."

From Sweden.—"It is impossible to estimate the amount of gold and silver used yearly in the industrial arts, but the objects manufactured in Sweden, which were stamped, in 1898, contained 480 kilograms of fine gold and 3,412 kilograms of fine silver. It is impossible to say how much of this consisted of new gold and silver. For the manufacture of medals 10 kilograms of fine gold and 215 kilograms of fine silver were used." Following the method formerly pursued by this Bureau in estimating the annual amount of new gold used in the industrial arts in Sweden, by deducting 10 per cent for old material, we find the consumption of new gold to have been 441 kilograms, fine, and for silver 3,264 kilograms, fine.

From Switzerland.—Gold, "about 10,000 kilograms, equal to 34,500,000 francs. These are approximate figures, because jewelry (industrial arts) is not under official control in Switzerland. New gold, about 6,000 kilograms, equal to 20,000,000 francs; old gold, about 4,000 kilograms, equal to 14,500,000 francs. Value established in conformity with the actual course." Silver, "about 75,000 kilograms, equal to 7,500,000 francs. New silver, about 55,000 kilograms, equal to 5,500,000 francs; old silver, about 20,000 kilograms, equal to 2,000,000 francs. Value estimated in conformity with the actual course."

For other countries.—For other countries the consumption of gold is estimated at 5,000 kilograms—following previous estimates of this bureau—and of silver at 50,000 kilograms, being Dr. Soetbeer's estimate in 1895, with 25 per cent added.

From these returns and with constant dependence upon Professor Soetbeer's exhaustive estimates, so often vindicated, the following table for the world's industrial consumption, has been prepared:

THE WORLD'S INDUSTRIAL CONSUMPTION OF GOLD AND SILVER IN 1898.

Country.	Gold.		Silver.		
	Weight.	Value.	Weight.	Coining value.	Commercial value.
	Kilograms.		*Kilograms.*		
Austria-Hungary	4,173	$2,773,380	62,343	$2,590,980	$1,182,300
Belgium	2,543	1,690,080	20,000	831,200	379,300
Brazil	750	498,450	....	....	....
Egypt	1,077	715,770	5,034	209,210	95,500
England	21,080	14,009,770	194,600	8,087,570	3,690,600
France	18,240	12,122,300	155,850	6,477,130	2,955,700
Germany	10,743	7,139,800	150,000	6,234,000	2,844,700
Italy	5,000	3,323,000	21,000	872,760	398,300
Netherlands	557	370,180	9,066	376,780	171,900
Paraguay	3	1,990	100	4,160	1,900
Portugal	955	634,690	5,600	232,730	106,200
Russia	4,087	2,716,220	95,000	3,948,200	1,801,700
Sweden	441	293,090	3,264	135,650	61,900
Switzerland	6,000	3,987,600	55,000	2,285,800	1,043,100
United States	17,155	11,400,900	262,494	10,909,230	4,978,200
Other countries	5,000	3,323,000	50,000	2,078,000	948,200
Total	97,804	65,000,220	1,089,351	45,273,400	20,659,500

GOLD AND SILVER USED IN THE INDUSTRIAL ARTS IN THE UNITED STATES DURING THE CALENDAR YEAR 1898.

As in previous years, inquiries have been made by this Bureau for the purpose of ascertaining, approximately, the amount of gold and silver used in the United States in the industrial arts and manufactures.

In reply to these inquiries statements have been received from Government institutions and private refineries, showing the amount and value of the bars of gold and silver sold to jewelers and manufacturers for industrial use during the last calendar year, and as nearly as possible the material used in the manufacture of such bars.

The following table exhibits the quantity and value of the gold and silver bars sold manufacturers and jewelers by the United States mint at Philadelphia during the calendar year 1898:

Value and Composition of Bars Manufactured for Use in the Industrial Arts by the United States Mint at Philadelphia during the Calendar Year ended December 31, 1898.

Material used.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Domestic bullion	29, 508. 750	$610, 000. 00	56, 213. 71	$72, 680. 35
Jewelry, etc	3, 964. 738	81, 958. 40	54, 313. 77	70, 223. 86
Unites States coin	727. 386	15, 036. 41	19. 80	25. 60
Total	34, 200. 874	706, 994. 81	110, 547. 28	142, 929. 81

The following table exhibits the quantity and value of the gold and silver bars sold manufacturers and jewelers by the United States assay office at New York during the calendar year 1898:

Statement of Gold and Silver Bars Furnished for Use in the Arts and Manufactures by the United States Assay Office at New York during the Calendar Year ended December 31, 1898.

Material used.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Domestic bullion	393, 598. 305	$8, 136, 399. 08	4, 874, 638. 31	$6, 302, 562. 66
Foreign material	21, 170. 870	437, 640. 72	489, 159. 65	632, 448. 84
Old plate, etc	68, 641. 302	1, 418, 941. 65	390, 764. 15	505, 230. 42
Total	483, 410. 477	9, 992, 981. 45	5, 754, 562. 11	7, 440, 241. 92

The following table exhibits the quantity and value of the gold and silver bars sold manufacturers and jewelers by the private refineries in the United States during the calendar year 1898:

Bars for Industrial Use Furnished Goldsmiths and Others by Private Refineries during the Calendar Year 1898.

Material used.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Domestic bullion (exclusive of United States bars)	34, 678	$716, 863	2, 940, 254	$3, 801, 541
United States bars	95, 073	1, 965, 347	925, 390	1, 196, 464
United States coin	9, 069	187, 468	25	32
Old plate, jewelry, and other old material	32, 125	664, 076	289, 156	373, 858
Total	170, 945	3, 533, 754	4, 154, 825	5, 371, 895

Firms addressed	39
Firms replying	39
Firms manufacturing	24
Firms not manufacturing	15

Of the bars furnished by private refineries to manufacturers and jewelers for industrial use, $1,965,347 in gold and $1,196,464 in silver were "United States bars"—that is, bars bearing the stamp of Government institutions; and in order to avoid duplication these amounts must be deducted from the totals reported by private refineries.

The following table exhibits the quantity and value of gold and silver bars sold manufacturers and jewelers by the private refineries in the United States, after eliminating the "United States bars," during the calendar year 1898:

BARS FOR INDUSTRIAL USE, EXCLUSIVE OF UNITED STATES BARS, FURNISHED GOLDSMITHS AND OTHERS BY PRIVATE REFINERIES DURING THE CALENDAR YEAR 1898.

Material used.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Domestic bullion	34,678	$716,863	2,940,254	$3,801,541
United States coin	9,069	187,468	25	32
Old plate, jewelry, and other old material	32,125	664,076	289,156	373,858
Total	75,872	1,568,407	3,229,435	4,175,431

The following table exhibits the value of gold and silver bars sold manufacturers and jewelers by Government institutions and private refineries:

GOLD AND SILVER BARS FURNISHED FOR USE IN MANUFACTURES AND THE ARTS DURING THE CALENDAR YEAR 1898, AND CLASSIFICATION OF THE MATERIAL.

Material used.	Gold.	Silver (coining value).	Total.
Domestic bullion	$9,463,262	$10,176,784	$19,640,046
United States coin	202,504	58	202,562
Old material	2,164,976	949,312	3,114,288
Foreign bullion and coin	437,641	632,449	1,070,090
Total	12,268,383	11,758,603	24,026,986

The actual amount of United States coin melted by goldsmiths and jewelers is not known, but, assuming the total amount of gold coin used in the arts to be $1,500,000 and silver coin $100,000, the industrial consumption of the precious metals in the United States during the calendar year 1898 would be as follows:

INDUSTRIAL CONSUMPTION OF THE PRECIOUS METALS DURING THE CALENDAR YEAR 1898.

Material used.	Gold.	Silver (coining value).	Total.
Domestic bullion	$9,463,262	$10,176,784	$19,640,046
United States coin	1,500,000	100,000	1,600,000
Old material	2,164,976	949,312	3,114,288
Foreign bullion and coin	437,641	632,449	1,070,090
Total	13,565,879	11,858,545	25,424,424

GOLD BARS EXCHANGED FOR GOLD COIN AT THE MINT AT PHILADELPHIA AND ASSAY OFFICE AT NEW YORK DURING THE CALENDAR YEAR 1898.

Month.	Philadelphia.	New York.	Total.
1898.			
January	$60, 000. 00	$532, 102. 45	$592, 102. 45
February	45, 000. 00	546, 312. 70	591, 312. 70
March	55, 000. 00	633, 697. 50	688, 697. 50
April	50, 000. 00	392, 324. 26	442, 324. 26
May	50, 000. 00	347, 399. 93	397, 399. 93
June	45, 000. 00	466, 354. 30	511, 354. 30
July	25, 000. 00	458, 904. 75	483, 904. 75
August	40, 000. 00	692, 701. 93	732, 701. 93
September	55, 000. 00	765, 417. 13	820, 417. 13
October	60, 000. 00	633, 780. 76	693, 780. 76
November	65, 000. 00	661, 779. 09	726, 779. 09
December	60, 000. 00	432, 330. 75	492, 330. 75
Total	610, 000. 00	6, 563, 105. 55	7, 173, 105. 55

All the gold bars exchanged for gold coin at the mint at Philadelphia and assay office at New York, under the provisions of the act of May 26, 1882, were employed in the industrial arts.

The following table shows the amounts and the classification of gold and silver used in the industrial arts in the United States each year since 1880:

GOLD AND SILVER BARS FURNISHED FOR USE IN MANUFACTURES AND THE ARTS, AND CLASSIFICATION OF THE MATERIAL USED, BY CALENDAR YEARS, SINCE 1880.

GOLD.

Calendar year.	United States coin.	New material.	Old material.	Foreign bullion and coin.	Total.
1880	$3, 300, 000	$6, 000, 000	$395, 000	$1, 267, 600	$10, 962, 600
1881	2, 700, 000	7, 000, 000	522, 900	1, 547, 800	11, 770, 700
1882	2, 500, 000	7, 000, 000	696, 500	671, 500	10, 868, 000
1883	4, 875, 000	7, 840, 000	1, 549, 300	194, 500	14, 458, 800
1884	5, 000, 000	6, 000, 000	3, 114, 500	385, 500	14, 500, 000
1885	3, 500, 000	6, 736, 927	1, 408, 902	178, 913	11, 824, 742
1886	3, 500, 000	7, 003, 480	1, 928, 046	638, 003	13, 069, 529
1887	3, 500, 000	9, 090, 342	1, 835, 882	384, 122	14, 810, 346
1888	3, 500, 000	9, 893, 057	2, 402, 976	718, 809	16, 514, 842
1889	3, 500, 000	9, 686, 827	3, 218, 971	291, 258	16, 697, 056
1890	3, 500, 000	10, 717, 472	3, 076, 426	362, 062	17, 655, 960
1891	3, 500, 000	10, 697, 679	4, 860, 712	628, 525	19, 686, 916
1892	3, 500, 000	10, 588, 703	4, 468, 685	771, 686	19, 329, 074
1893	1, 500, 000	8, 354, 482	2, 777, 165	804, 254	13, 435, 901
1894	1, 500, 000	6, 430, 073	2, 184, 946	543, 585	10, 658, 604
1895	1, 500, 000	8, 481, 789	2, 976, 269	471, 027	13, 429, 085
1896	1, 500, 000	7, 209, 787	2, 369, 343	316, 804	11, 395, 934
1897	1, 500, 000	7, 184, 822	2, 571, 428	613, 981	11, 870, 231
1898	1, 500, 000	9, 463, 262	2, 164, 976	437, 641	13, 565, 879
Total	55, 375, 000	155, 378, 702	44, 522, 927	11, 227, 570	266, 504, 199

SILVER (COINING VALUE).

Calendar year.	United States coin.	New material.	Old material.	Foreign bullion and coin.	Total.
1880	$600, 000	$5, 000, 000	$145, 000	$353, 000	$6, 098, 000
1881	200, 000	5, 900, 000	178, 000	371, 000	6, 649, 000
1882	200, 000	6, 344, 300	212, 900	440, 300	7, 197, 500
1883	200, 000	4, 623, 700	561, 900	155, 000	5, 540, 600
1884	200, 000	4, 500, 000	170, 000	650, 000	5, 520, 000
1885	200, 000	4, 539, 875	462, 186	62, 708	5, 264, 769
1886	200, 000	3, 626, 195	404, 155	825, 615	5, 055, 965
1887	200, 000	4, 102, 734	480, 606	654, 991	5, 438, 331
1888	200, 000	6, 477, 857	652, 047	771, 985	8, 101, 889
1889	200, 000	7, 297, 933	611, 015	657, 997	8, 766, 945
1890	200, 000	7, 143, 635	640, 100	1, 245, 419	9, 229, 154
1891	200, 000	7, 289, 073	858, 126	1, 256, 101	9, 603, 300
1892	200, 000	7, 204, 210	647, 377	1, 249, 801	9, 301, 388
1893	100, 000	6, 570, 737	1, 222, 836	1, 740, 704	9, 634, 277
1894	100, 000	8, 579, 472	1, 221, 177	982, 399	10, 883, 048
1895	100, 000	9, 825, 387	1, 378, 136	973, 501	12, 277, 024
1896	100, 000	7, 965, 449	1, 076, 829	1, 061, 995	10, 204, 273
1897	100, 000	9, 200, 497	1, 103, 460	797, 193	11, 201, 150
1898	100, 000	10, 176, 784	949, 312	632, 449	11, 858, 545
Total	3, 600, 000	126, 367, 838	12, 975, 162	14, 882, 158	157, 825, 158

WORLD'S PRODUCTION OF GOLD AND SILVER IN 1898.

The world's gold production in 1898 was 432,483 kilograms, or 13,904,363 ounces, fine, of the value of $287,428,600, an increase over the product of 1897 of 73,150 kilograms, or 2,351,831 ounces, valued at $48,616,600.

Since 1887, when about $106,000,000 were produced, each year has shown an increase over the preceding one. In 1892 over $146,000,000 was produced, this being at that time the largest production in the history of the world. Previous to that date the largest production was between the years 1856 and 1860, when it averaged $134,000,000.

The 1898 product is eight times larger than the production at the time of the California discoveries; it is greater than the total production of gold and silver (at coining value), in any year previous to 1890.

There is no reason to expect any cessation of this steady annual increase for some years to come. The Transvaal has not nearly reached its limit; Australia, particularly West Australia, is not yet half developed; Alaska and the Yukon have only fairly begun to produce, while the recent steady increase in Colorado and other Western States show no signs of abating. The present output differs from that in the fifties, when the California placers yielded such enormous stores of gold, because those could be exhausted, more or less speedily, while the present yield comes from the working of low-grade ore, rendered profitable by improved modern methods of reduction and is practically unlimited.

The following table shows, in round numbers, the increase and decrease for 1898 as compared with 1897:

GOLD.

Countries.	Increase in 1898.	Decrease in 1898.
United States	$7,100,000	....
Mexico	1,000,000	....
Canada	7,749,200	....
Africa	21,869,300	....
Australasia	12,195,100	....
Russia	2,217,700	....
Austria-Hungary	....	$376,100
Germany	....	1,299,500
Sweden	....	800
Italy	....	28,500
Great Britain	....	28,500
Colombia	36,000	....
Ecuador	....	93,400
Brazil	379,500	....
British Guiana	....	38,000
Dutch Guiana	....	33,000
French Guiana	108,500	....
Central America	7,900	....
Japan	97,200	....
China	....	2,754,800
British India	534,300	....
East Indies	....	25,500
Total	53,294,700	4,678,100
Net increase	48,616,600	....

The world's production of silver in 1898 was 5,142,336 kilograms, or 165,295,572 ounces, fine, of the coining value of $213,715,400 and the commercial value of $97,632,400. It shows an increase over 1897 of 38,027 kilograms, or 1,222,400 ounces, fine, corresponding to $1,580,600 (coining value), and showing a decrease of $919,300 in the commercial value. The decline of 1 cent per ounce in the average price of silver in 1898 eliminated the increase in the total ounces produced.

NOTE.—Closer official estimates of the silver yield of Australasia and more accurate approximations by this Bureau for several South American countries have largely reduced the total silver product for 1897 and 1896. This is the reason of the apparent heavy decrease in silver shown by a comparison of last year's report with that of this year.

The following table shows the increase and decrease of the silver yield of 1898 as compared with that of 1897:

SILVER.

Countries.	Increase in 1898.	Decrease in 1898.
	Fine ounces.	*Fine ounces.*
United States	578,000	....
Mexico	2,834,820	....
Canada	....	1,106,113
Australia	143,682	....
Russia	....	6,133
Austria-Hungary	....	156,038
Germany	73,381	....
Norway	4,243	....
Sweden	44,617	....
Italy	67,349	....
Greece	....	221,828
Great Britain	....	20,761
Colombia	436,389	....
Peru	....	1,327,362
Central America	....	95,884
Japan	....	25,962
Total	4,182,481	2,960,081
Net increase	1,122,400	....

It will be seen that an increase greater than the entire net increase comes from Mexico, and that the heaviest decreases are in Canada's and South America's yields. In the latter continent, the decreases are evidently due to the general closing of the mints to silver coinage.

Mexico is the only country of large commercial interests that remains on a silver basis and that continues to coin silver in large quantities. The fall in the value of silver does not seriously affect the Mexican mine owners, for paying their expenses, as they do, in silver, it perhaps requires no larger percentage of their product to operate the mines now than it did when silver was worth a higher price. They suffer loss only upon that portion which is profit. Their employees bear the loss upon the portion which is paid to them; and, as a mere reduction of profits never suppresses an industry, but on the contrary often stimulates it to a greater output, the Mexican silver mines go on increasing their product.

The following table shows, by calendar years, the production and value of gold and silver in the world since 1860:

PRODUCT OF GOLD AND SILVER IN THE WORLD SINCE 1860.

[The annual production of 1860 to 1872 is obtained from 5-year period estimates, compiled by Dr. Adolph Soetbeer. Since 1872 the estimates are those of the Bureau of the Mint.]

Calendar year.	Gold.		Silver.		
	Fine ounces.	Value.	Fine ounces.	Commercial value.	Coining value.
1860	6,486,262	$134,083,000	29,095,428	$39,337,000	$37,618,000
1861	5,949,582	122,989,000	35,401,972	46,191,000	45,772,000
1862	5,949,582	122,989,000	35,401,972	47,651,000	45,772,000
1863	5,949,582	122,989,000	35,401,972	47,616,000	45,772,000
1864	5,949,582	122,989,000	35,401.972	47,616,000	45,772,000
1865	5,949,582	122,989,000	35,401,972	47,368,000	45,772,000
1866	6,270,086	129,614,000	43,051,583	57.646,000	55,663,000
1867	6,270,086	129,614,000	43,051,583	57,173,000	55,663,000
1868	6,270,086	129,614,000	43.051.583	57,086,000	55,663,000
1869	6,270.086	129,614,000	43,051.583	57,043,000	55,663,000
1870	6,270,086	129,614,000	43,051,583	57,173,000	55,663,000
1871	5,591,014	115.577,000	63,317,014	83,958,000	81,864,000
1872	5,591,014	115,577,000	63,317,014	83,705.000	81,864,000
Total	78,766,630	1,628,252,000	547,997,231	729,563,000	708,521,000
1873	4,653,675	96,200,000	63,267,187	82,120,800	81,800,000
1874	4,390,031	90,750,000	55,300,781	70,674,400	71,500,000
1875	4,716,563	97,500,000	62,261,719	77,578,100	80,500,000
1876	5,016,488	103,700,000	67,753,125	78,322,600	87,600,000
1877	5,512,196	113,947,200	62,679,916	75,278,600	81,040,700
1878	5,761,114	119,092,800	73,385,451	84,540,000	94,882,200
1879	5,262,174	108,778,800	74,383,495	83,532,700	96,172,600
1880	5,148,880	106,436,800	74,795,273	85,640,600	96,705,000
1881	4,983,742	103,023,100	79,020,872	89,925,700	102,168,400
1882	4,934,086	101,996,600	86,472,091	98,232,300	111,802,300
1883	4,614,588	95,392,000	89,175,023	98,984,300	115,297,000
1884	4,921,169	101,729,600	81,567,801	90,785,000	105,461,400
1885	5,245,572	108,435,600	91,609,959	97,518,800	118,445,200
1886	5,135,679	106,163,900	93,297,290	92,793,500	120,626,800
1887	5,116,861	105,774,900	96,123,586	94,031,000	124,281,000
1888	5,330,775	110,196,900	108,827,606	102,185,900	140,706,400
1889	5,973,790	123,489,200	120,213,611	112,414,100	155,427,700
1890	5,749,306	118,848,700	126,095,062	131,937,000	163,032,000
1891	6,320,194	130,650,000	137,170,919	135,500,200	177,352,300
1892	7,094,266	146,651,500	153,151,762	133,404,400	198,014,400
1893	7,618,811	157,494,800	165,472,621	129,119,900	213,944,400
1894	8,764,362	181,175,600	164,610,394	104,493,000	212,829,600
1895	9,615,190	198,763,600	167,500,960	109,545,600	216,566,900
1896	9,783,914	202,251,600	157,061,370	105,859,300	203,069,200
1897	11,552,532	238,812,000	164,073,172	98,443,800	212,134,800
1898	13,904,363	287,428,600	165,295,572	97,524,500	213,715,400
Total	167,120,321	3,454,683,800	2,780,566,618	2,560,386,100	3,595,075,700
Grand total	245,886,951	5,082,935,800	3,328,563,849	3,289,949,100	4,303,596,700

WORLD'S COINAGE, 1896, 1897, AND 1898.

In the Appendix will be found a table, revised from the latest information received, exhibiting the coinages of the various countries of the world during the calendar years 1896, 1897, and 1898. The following is a summary of the same:

COINAGE OF NATIONS.

Calendar year.	Gold.	Silver.
1896	$195, 899, 517	$159, 540, 027
1897	437, 722, 992	167, 790, 006
1898	395, 477, 905	149, 282, 935

While the above figures represent, as accurately as the Bureau has been able to ascertain, the total value of the gold and silver coinage of the world during the calendar years 1896, 1897, and 1898, they do not accurately represent the value of the coinage from new material alone, but include the value of the recoinage of foreign and domestic coins, and that derived from old material, plate, jewelry, etc., melted and used in coinage. Many foreign governments in their reports to the Bureau failed to separate the values of the coinage derived from these various sources.

The following table exhibits, by calendar years, the fine ounces and value of the gold and silver coinage of the world since 1873:

COINAGE OF GOLD AND SILVER OF THE MINTS OF THE WORLD FOR THE CALENDAR YEARS SINCE 1873.

Calendar year.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
1873	12, 462, 890	$257, 630, 802	101, 741, 421	$131, 544, 464
1874	6, 568, 279	135, 778, 387	79, 610, 875	102, 931, 232
1875	9, 480, 892	195, 987, 428	92, 747, 118	119, 915, 467
1876	10, 309, 645	213, 119, 278	97, 899, 525	126, 577, 164
1877	9, 753, 196	201, 616, 466	88, 449, 796	114, 359, 332
1878	9, 113, 202	188, 386, 611	124, 671, 870	161, 191, 913
1879	4, 390, 167	90, 752, 811	81, 124, 555	104, 888, 313
1880	7, 242, 951	149, 725, 081	65, 442, 074	84, 611, 974
1881	7, 111, 864	147, 015, 275	83, 539, 051	108, 010, 086
1882	4, 822, 851	99, 697, 170	85, 685, 996	110, 785, 934
1883	5, 071, 882	104, 845, 114	84, 541, 904	109, 306, 705
1884	4, 810, 061	99, 432, 795	74, 120, 127	95, 832, 084
1885	4, 632, 273	95, 757, 582	98, 044, 475	126, 764, 574
1886	4, 578, 310	94, 642, 070	96, 566, 844	124, 854, 101
1887	6, 046, 510	124, 992, 465	126, 388, 502	163, 411, 397
1888	6, 522, 346	134, 828, 855	104, 354, 000	134, 922, 344
1889	8, 170, 611	168, 901, 519	107, 788, 256	139, 362, 595
1890	7, 219, 725	149, 244, 965	117, 789, 228	152, 293, 144
1891	5, 782, 463	119, 534, 122	106, 962, 049	138, 294, 367
1892	8, 343, 387	172, 473, 124	120, 282, 947	155, 517, 347
1893	11, 243, 342	232, 420, 517	106, 697, 783	137, 952, 690
1894	11, 025, 680	227, 921, 032	87, 472, 523	113, 095, 788
1895	11, 178, 855	231, 087, 438	98, 128, 832	126, 873, 642
1896	9, 476, 639	195, 899, 517	123, 394, 239	159, 540, 027
1897	21, 174, 850	437, 722, 992	129, 775, 082	167, 790, 006
1898	19, 131, 244	395, 477, 905	115, 461, 020	149, 282, 935
Total	225, 664, 115	4, 664, 891, 321	2, 598, 680, 092	3, 359, 909, 625

REPORTS OF THE SPECIAL AGENTS OF THE BUREAU OF THE MINT ON THE PRODUCTION OF THE PRECIOUS METALS IN 1898 IN THE SEVERAL STATES AND TERRITORIES.

I.

ALASKA.

By Charles G. Yale.

There is increasing difficulty in obtaining even approximate returns of the gold output of Alaska, in view of the many new discoveries being made over a wide area ot country and the nomadic nature of the mining population. Large numbers of men, attracted to the Northwest Territory by the Klondike mines, have left that region and gone down the Yukon River toward Forty Mile, Eagle City, and Circle City on the American side of the boundary line, and scattered among the numerous creeks in these and neighboring districts. They have gone up the Porcupine River and down the Tanana from its head waters; and the districts around Manook, of which Rampart City is in the center, have been thoroughly prospected with some good results, though not as great as at first expected. Some thousands of men have been prospecting on the Koyukuk River and its branches, and there are now some twenty small steamers plying in this region. As yet little is known of the results of the winter's work beyond mere rumor of rich diggings having been found in several places.

During the year 1897 the few camps on the American side were all between Fort Yukon and Dawson, a distance of some 350 miles, and the entire mining population of northwestern Alaska was concentrated at a few points, mainly at Circle City and Forty Mile diggings. Large numbers of the miners left for the Klondike, and the older American camps were practically deserted. These conditions have, however, now been changed. Those who were disappointed in their hopes at the Klondike diggings have returned to their old camps, and their numbers have been augmented by some thousands of newcomers who failed to obtain claims on the Canadian side, and who continued on down the Yukon River, hoping to be able to stake claims in some of the American districts on the streams tributary to that river.

The result of this influx of mining population has been the discovery of many new gold-bearing creeks—so many, indeed, that it has been difficult to even locate these in this poorly mapped region, much less keep track of the output. The population of the camps is constantly changing. A camp or district may have a hundred persons one week and in the next two or three weeks a thousand or more, the result of rumors of rich ground having been worked.

Great numbers of men have been going into Alaska for the past two years, both up the Yukon River via St. Michaels and over the passes down the same river via Dawson. How many there are it is impossible to estimate, as a large proportion of these originally started for the Klondike region, and eventually brought up in the Alaskan camps farther down the river.

During the winter of 1898–99 a great number of claims have been opened on newly discovered creeks, from which as yet no returns are available. After the closing of the Yukon River by the ice in October there is little or no communication from the camps on the lower portions of the river with the outside world until the following June.

In the winter diggings, the ground is mined and placed on the dumps only to be washed and cleaned up when the water flows in the spring. The summer diggings, such as those at Circle City and thereabouts, have the bulk of the mining done in the summer, when there is water to wash gravel. The bar diggings on the rivers can also only be worked during the summer months.

An encouraging feature for future prospecting in Alaska is the more abundant food supply at the various camps, made possible by the largely increased number of steamboats now plying the larger rivers. This will naturally have the effect of eventually reducing the cost of supplies, especially as there are so many competing transportation companies in addition to the many individual enterprises of this character. The distribution is now much better than formerly, when there were so few populated points, giving the prospectors an opportunity to examine the more isolated areas. Formerly it was necessary to take food, etc., in rowboats some hundreds of miles from supply stations, but now there are so many places where supplies are available along the principal rivers that the miners have less of this water carriage to do. A notable instance of this is on Koyukuk River, where there are now one or two thousand men wintering. In 1897 there was not a steamboat on the river, and in 1898 there were about twenty—most of these small ones, however. Still, they transported supplies a long distance up the stream, enabling the miners to remain there through the winter, and thus settling up the various camps and creeks.

The result of this increase of supply points is bound to increase the number of districts and camps and bring more territory into a producing stage, thus augmenting the total gold output of Alaska. The whole country is really in a transition stage at the present time, for three reasons. It has been a mere wilderness for ages, but there are now numerous settlements being formed at different points, widely separated for the most part, it is true, making intercommunication more possible and tending to the gradual settlement of the extensive region, as much as a purely mining country may be called settled. The news of richer diggings calls off the superfluous population of any of these camps, and those men who have not been fortunate enough to secure paying claims at one place eagerly hasten to a new district where there is a possibility of "staking" a good claim for themselves. It is for this reason that so large a proportion of the men in northwestern Alaska may be called nomadic in their habits, as the country is so new from a mining standpoint and there are so many newcomers that large numbers have not as yet secured claims which will induce them to remain at one place and do actual mining work instead of prospecting.

It will be seen from this that there are still many more prospectors than actual miners, as is always the case in a new mining region. In the newer camps the men actually refuse to work for high wages on richer claims while there is a probable chance of their staking for themselves. They prefer to continue to prospect on their own account instead of working for others, even with the inducement of very high wages. In fact, most of the men who have gone north in quest of gold have done so with the hope of securing rich ground for themselves rather than to obtain employment at mining. An instance of this is known to the writer where, at a new camp, with few men at first, as high as $40 a day was refused in wages to work on the claims of others while there was much unlocated ground on the creeks. It is for that reason that labor is often scarce where there are numbers of men who do not own claims. In most cases the miners prefer to work on a "lay"—that is, a percentage of the output—rather than on a fixed amount per diem.

An encouraging feature for the wide distribution of gold in Alaska is the discovery of diggings at several places surrounding Norton Sound and especially those discoveries made during the winter of 1898–99. Good diggings, as yet undeveloped, however, were found in the winter of 1897–98 on the tributaries of the Fish River, which empties into Golovin Bay, north of St. Michael, on the coast of Norton Sound. Gold was also found on two rivers emptying into Norton Bay. It was also found on the Anvik River, which, starting from near Norton Sound, empties into the Yukon River. Men and supplies have been sent up to all of these points and the claims will be systematically worked this summer, for as far as known they are summer diggings.

In the fall of 1898 diggings were discovered on the creeks emptying into the Snake River and other neighboring localities near Cape Nome, about 100 miles north of St. Michael on Norton Sound.

The stories of the finds in this locality, which is not far from the Golovin Bay diggings, have caused excitement throughout Alaska and the Klondike, and some thousands of men are expected there in the summer of 1899. A considerable number are now leaving San Francisco and Seattle for the Cape Nome diggings. It is said to be only 6 feet to bed rock in most of the region and some of the claims are said to rival those of the famous Klondike. Late advices from there confirm the first reports as to the richness of the ground, but it will be the middle of summer before the stories can be verified. If accounts be true the diggings cover quite an extensive area.

These, Golovin Bay, Norton Sound, Anvik, and Cape Nome diggings, are all on the coast of Norton Sound, Bering Sea, and are much more accessible than those up the Yukon River, where most attention has been directed since the Klondike excitement broke out. Numbers of men are reported leaving the interior of Alaska for the coast diggings.

Of the mines at Copper River and Kotezbue Sound no favorable reports have been received, most of those who went to those points having been disappointed.

Manook Creek has not proved as rich as was at first expected. During the winter of 1897–98 some 1,495 feet of ground was worked in ten claims and the summer clean-up in 1898 amounted to $127,000, according to the best information at hand. The best ground was found to be on Little Manook Creek, but most other creeks in the district were failures. Some reports sent out last winter tell of phenomenally rich ground on this creek, but these remain to be verified.

The quartz mines at Douglas Island continue to produce handsomely, and the milling capacity of the largest mines has lately been much increased, until the mills are now the largest in this country. The two principal mines on the island produced, in 1898, $1,010,356 in gold. These two mines employed 427 men, at wages from $2 to $3.50 per day and board. One of them worked 162,457 tons of ore of average assay value of $2.31 per ton and the other worked 253,095 tons, averaging $2.50 per ton.

At Julian and at Sum Dum quartz mines are worked with good success and others are being opened.

On Unga Island, the Apollo Consolidated Mine is being successfully worked and it continues to be a large producer, employing 120 men at an average of $3 per day.

The Lituya Bay Beach sand mines only yielded about $10,000 in the summer of 1898, but are to be worked much more extensively and systematically this year.

It has been found impossible to get any reliable estimates of the output of the various placer fields of Alaska for 1898 directly from persons at those points, and so much gold is carried out by private hands that the records of the transportation companies do not serve the purpose. For this, and the reasons stated in this chapter, it has been found impracticable to make any figures of distribution of product which would be even approximately correct. Information has been collected, however, from the United States mints and assay offices and private refineries and smelters as to the amount of gold and silver received by them from Alaska in 1898, and this is given in the appended table:

STATEMENT OF BULLION OF ALASKA PRODUCTION RECEIVED AT UNITED STATES MINTS AND ASSAY OFFICES AND PRIVATE REFINERIES AND SMELTERS DURING CALENDAR YEAR 1898.

Metals.	Standard ounces.	Coining value.
Gold	135, 295. 28	$2, 517, 121
Silver	98, 304 77	114, 390

A similar table from the same sources is given relative to the output of the Klondike region as a matter of general interest in this connection:

STATEMENT OF BULLION OF NORTHWEST TERRITORY PRODUCTION RECEIVED AT UNITED STATES MINTS AND ASSAY OFFICES AND PRIVATE REFINERIES AND SMELTERS DURING CALENDAR YEAR 1898.

Metals.	Standard ounces.	Coining value.
Gold	595, 318. 214	$11, 038, 478
Silver	160, 996. 14	187, 341

As giving the details of the condition of affairs in most of the older districts on the upper Yukon river, and an account of the discovery of many new creeks in the same region, the following article by Sam W. Wall, the correspondent of the San Francisco Call, and published in that paper of date of May 19, 1899, is given in a condensed form. It is the clearest account of the discoveries of the winter 1898-99 made on the American side which has as yet been sent out from the gold fields, but is confined, as stated, to the upper Yukon River, between Circle City and Dawson.

The letter is dated "Dawson, April 7":

That part of the uncertain river last spring and summer saw Dawson, heard the complaint that "everything is staked," and passed on, has worked out the result that most people expected it to work out.

Several ambitious towns have been born farther down, an old town or two have been revived, and creeks, and creeks, and creeks—a hundred of them, many hitherto unheard of—have found queer names for themselves, and been given strange places on strange, bewildering maps.

But the men who scaled the glaciers or climbed the divides breast deep with snow, hauling their sleds after them into regions to them unknown, have in very many cases come back this spring triumphant.

So from all along the river, as far down as Seventy Mile at least, the spring air breathes deep satisfaction. Nothing very sensational has been developed, but there is a wide area of "good pay" located, and with that the miner is disposed to be very hopeful.

United States Government
Designated Depository
Library of Washington University
St. Louis, Mo

The miners on each creek on the American side have the right to fix the size of the claim within the maximum of the law, but in almost all of them the law of the books (1,320 by 660 feet) is the law of the creeks in this regard, and the man is considered difficult to please who, finding twenty acres of 10-cent gravel which he may claim as his own for a recording fee of $2.50, still remains unhappy.

A great number of creeks, old and new, have during the past winter discovered pay streaks of this quality, ranging from 3 to 50 cents a pan, through extensive areas, and a new impulse has been given to the entire region.

Saying nothing just here of Circle City or below, there are three points at which prospectors have centered and from which they have radiated back into the hills. These are Forty Mile, at the mouth of Forty Mile River, 56 miles below Dawson; Eagle City, 54 miles below Forty Mile; and Seventy Mile, 20 miles below Eagle. With an immense region back of these places, veined with hundreds of creeks, most of them now known to be gold-bearing, each has its banner creek of which it boasts. At Forty Mile Creek they conjure with Jack Wade; at Eagle City, Slate Creek is the word, and at Seventy Mile Flume. Of these Jack Wade has within the past few weeks become preeminent. The find there rises out of the common level of "3 to 10 cent pans" that has in reputation spread itself hitherto over all that vast region, indefinitely spoken of as "the American side."

Forty Mile stands, geographically, but one remove from Dawson, however, and in such close companionship with Gold Hill it takes much to excite its people. A few days ago 6 pans were taken out of a hole in No. 8, below upper discovery, on Jack Wade, running in succession as follows: $3.20, $1.20, $2, $6, $3.60, $1.47. While the men were digging in this hole, several big chunks of gold, round and smooth as the pebbles of the brook, fell from the walls, to the astonishment and delight of the diggers, for they had not until that time had any suspicion that their dirt was worth above 15 cents to the pan. One of the nuggets weighed $15.20, another $16, and another $38.80. The creek is, of course, now located from end to end with a double row of benches, or side claims. It is about 22 miles long, and is about 60 miles from the town of Forty Mile. The town is in Canadian territory, the creek in American. The trail to the creek leads up Forty Mile River to Steel Creek, 40 miles from the mouth, crossing the international boundary at Sam Patch's, 23 miles up. By way of Steel Creek and over a low divide the prospector gets into Grace Creek, a small tributary of Wade.

There are several hundred men now working on the creek, 200 having gone in since the big find was made. The strike was made on No. 8, below upper discovery.

Previous to the fall of the big nuggets, the best pan had been 20 cents, with 2½ to 4 feet of gravel, in which that kind of pay was found. Bed rock is from 9 to 15 feet deep and the ground is easily worked. The gold is of light color, worn smooth, and closely resembles that of Napoleon Gulch, which, on the other side divide, heads up in the same hills. Jack Wade Creek empties into Walker Fork of Forty Mile River.

Altogether thirty claims have been prospected on the creek this winter and every one has developed pay. The claims on the creek are generally at 1,000 feet; a few that were staked before this regulation was made are allowed to remain at 1,320 feet. The creek was staked in great part in the names of people who were never on the creek, powers of attorney being used by general consent. It is reasonably certain that, should the creek turn out as it is now expected it will, these claims will be jumped and plenty of trouble result. The creek is staked from an upper and lower discovery and also from the mouth up to lower discovery.

The Forty Mile diggings are about the oldest in this Yukon country. Forty Mile was a town long before Circle City was thought of. It is called Forty Mile because it was supposed to be 40 miles below Fort Reliance. Jack McQuesten's early establishment (some 10 miles down the river from Dawson), only a few crossed logs of which establishment remain. Forty Mile River is a long but shallow stream, with many divisions. In winter it affords an excellent trail, but in summer it is not navigable except for poling boats, and the canyon, about 15 miles from its mouth, adds greater difficulty to this difficult method. Fifty-three miles from the mouth O'Brien Creek, which heads in the American Creek country, enters the river, and 18 miles farther up the North Fork branches away in the same direction, with a hundred tributaries. South Fork swings away in the opposite direction, heading up in the Sixty Mile divide. Dennison's Fork on the south and Mosquito on the north divide, the waters again in like manner farther up, each having many tributaries.

Walker's Fork is the principal branch of the South Fork, and it is into this, heading back toward the main river and Forty Mile town, that Jack Wade Creek enters. Other tributaries of Walkers Fork where pay has been found are Poker Creek, Davis and Liberty creeks, the best of which is Poker Creek, and the best of this is in Canadian territory.

Good pay has been found on Walkers Fork itself at or near No. 36, below upper discovery, which is near the boundary line.

Davis Creek has been known for some time to be good diggings. An old man, however, owns nearly the whole creek—15 claims—and neither works himself nor allows others to work.

McKinley and Liberty, Crow, Turk, and Tigner creeks have been stampeded and staked, but since then little has been heard of them, although coarse gold has been found there. All creeks coming into Canyon Creek are found to be gold bearing. Among these Woods Creek has furnished many a man a grub stake with a few weeks' labor. Camp Creek, Kalamazoo, and Squaw are all said to carry pay, but they are as yet almost unprospected. A number of men went up Dennisons Fork this last winter, but have not yet reported. This is true also of the Middle Fork, and the towns of Forty Mile and Eagle City are awaiting them with great expectations.

Chicken Creek, which, prior to the rising of Jack Wade, was the banner creek in the Forty Mile district, empties into Mosquito Fork.

Nothing has as yet been found on Mosquito Fork proper. Chicken Creek is a very small stream. A man can jump over it at high water, and it will be difficult to get a good sluice head at that time. There are only a few claims about Discovery being worked, but they are being worked thoroughly.

Water has prevented much work being done on No. 1 below. Three men are at work on No. 2 above, which has been held and merely represented for four years. They are now taking out a dump and have got as high as 75 cents to the pan.

One lay is being worked on No. 6 above. Good pay is found there.

Ten lays were let on No. 2 below, but no dump is being taken out. A few pans were taken showing as high as 20 cents, but as for the rest nothing better than good colors were found. Little else has been developed downstream until No. 11 is reached. There the creek bottom is very wide, but they have been getting 15 to 20 cent pans. Below this very little work has been done.

Stonehouse is a tributary or continuation of Chicken Creek. Nos. 2 and 3 are being worked. On No. 4 two lays are being worked, but they have no dump to speak of. Three claims are being worked on Dry Pup, that comes in at No. 5. Some work is being done on two or three other pups as well as some benches. A bench off No. 2 Stonehouse is said to yield an average of 12 cents. Wash gravel is found all along the top of the divide between Chicken, Stonehouse, and Meyers Fork.

Franklin Creek and Napoleon Gulch enter the South Fork of Forty Mile below Mosquito Fork. Both are producers. A number of lays are being worked successfully on Franklin Creek. The formation is most difficult to work, and pay dirt is found in an inch and a half on bedrock. This is 15 feet down under a wickerwork of roots and moss. The gold is all in large pieces, and smooth like watermelon seeds. The gold of Jack Wade Creek and of Franklin Creek, which head up with Napoleon, is exactly like it. The gold of Chicken Creek, on the contrary, is generally fine powder.

O'Brien Creek, which comes into Forty Mile, 53 miles from the mouth, is a long stream that yet remains to be prospected. It has one tributary, however, that gives it importance. This is Dome Creek. The party who own Discovery and one above on Dome Creek, have sluiced off 300 feet and will shovel in this summer. Several other claims are being worked on the creek, and pans of $150 and $200 are not unusual.

The North Fork. More men have turned up the North Fork than into any other branch of the Forty Mile this winter, and previous to Jack Wade it was considered much the most hopeful division in the district. There is a loop in the creek which is called the North Fork Kink. A company has been formed to divert the water by cutting across the loop and leaving the creek bed for several miles dry and easily worked, as one goes up the North Fork.

Hutchinson Creek is the first tributary where much effort to find treasure is discovered. There has been a good deal of prospecting there during all the winter, but glaciers and water have greatly handicapped the workers. On Discovery $1.50 has been taken out of one pan.

Montana Creek, on the left going up, and French Gulch and Confederate Creek on the right, tributaries of Hutchinson, all show good pay in rather hasty prospecting. Progress in this direction brings the traveler into that region which is claimed by Eagle City as its own. To be understood geographically, according to the accepted method of approach to it, therefore one must talk of it from the Eagle City standpoint. Before leaving the Forty-Mile district, however, it may be said in a general way, that the work done in the whole region has been little more than mere prospecting, or where the pay has been located, the work being done is preparatory to summer ground sluicing.

The ground is generally shallow, and most of the claim owners and laymen, aside from getting out lumber for sluice boxes or stripping the surface, are "mushing" in their grub for the summer's work. It is estimated that there are about 1,200 men at work in the district covered in the foregoing, including about a hundred at work on Miller and Glacier creeks, of the Sixty Mile district, who outfit from this point, and about 250 people in the town of Forty Mile and at Fort Cudahy, just across the river. The town and all these diggings, struck a paralyzing blow by the big finds of the Klondike, are now reviving and are destined to a new life and far greater activity and more rapid development through the overflow from the Klondike than those finds have called in from the face of all the earth. These people are generally poor, however. All they have with which to enter the struggle is their pick and shovel and their two hands and their own poor little outfit, and this outfit they must carry with them wherever they go, up the creeks and over the divides. So the work is very slow to begin with, and only those creeks that have been previously worked and the pay streaks located can hope to turn out something above a grub stake this year. Of these, Chicken Creek will take first place. It is estimated that $100,000—some say twice as much—will be cleaned up from the four or five claims being worked there. Nearly all the work of the district, other than by claim owners themselves, is done on the lay system, 50 per cent being allowed. The old diggings of Miller and Glacier creeks are paying some wages at $1 per hour. The ground throughout the entire district, however, is for the most part shallow and better worked in the summer time, and it will be next fall, rather than this spring, that they will tell what they know about gold.

All this applies equally to the diggings and the men of Eagle City. Eagle City, a town of 800 people, has, since the ice went out last spring, risen up at the mouth of Mission Creek.

A code of civil, sanitary, and criminal regulations has been adopted. The town site, containing 87 acres, has been surveyed and streets laid out. The town contains 560 cabins, while at the same place this day of the month last year there was just one cabin, one of those "miner's cabins" built by the pioneers as a common, free-to-all stopping place for travelers. The people have petitioned Sitka, or Washington, to have Eagle City made the capital of a new judicial district and to have a land office opened there. Captain Richardson, United States military commandant on the Yukon, has had 10 acres above the town on the river front set aside for barracks. A detachment of the soldiers, now stationed at Circle City, will be sent up on an early spring boat and the barracks will be built. The Alaska Exploration Company and the North American Transportation and Trading Company have built large warehouses, and the Alaska Commercial Company has let a contract for a big building, work upon which will commence at once.

There are half a dozen smaller stores, with a complement of saloons, restaurants, and the like. They have a circulating library and a literary society. The town is about 15 miles from the boundary line on the American side, and this fact gives its people the hope of securing much more of the trade of the miners of the Forty Mile district than would otherwise fall to them. For, by taking goods over the trails that lead away from Eagle City into that country, the national line need not be crossed and the necessity of paying duty will be avoided. The winter trails lead up American and Mission creeks, and by the crossing of a low divide drop down into the tributaries of the North Fork of Forty Mile, and thence any division of that creek may be reached. The diggings on the South Dennison and Mosquito forks are, of course, more easily reached from and more naturally tributary to the town of Forty Mile, but they are nearly all in American territory, while the international boundary line, to cross which is to settle with a customs collector, stretches between them and the town.

Forty Mile, to be sure, may find a means of overcoming this difficulty, but if she can not Eagle will certainly build some more log houses upon the trade of the South Fork.

Mission Creek, at the mouth of which sits Eagle City, has developed very little pay as yet.

Wolf Creek, a tributary near the mouth, about which a good deal has been said this winter, has been prospected somewhat over its entire length. Prospects have been found on No. 4, above; No. 10, above; and No. 23. A shaft sunk on Discovery disclosed a 3-foot vein of good coal. On No. 22 pup a man last fall struck a quartz lead at a depth of 7 feet which is said to stand all the tests of genuineness, the seam being 85 feet wide, with granite walls both sides, and can be traced for 1½ miles. Assayed, it ran $40.80 to the ton.

American Creek, its principal tributary, empties into Mission, a few miles from its mouth. The creek is about 22 miles long and Discovery is 12 miles up. The creek is shallow and all summer diggings, but it has as yet scarcely been tested. The most energy displayed is on No. 2, above. The claim has been developing pay for two years, and the owners expect to take out $30,000 this summer; something over $12,000 last year. The present owners bought the claim, and were assured at the time by the previous owner that there was no pay except in the bottom of the creek. They took his word for it and worked out the bottom of the creek, and after that put a hole down a little higher up; there they struck much better pay, getting as high as $1 a pan.

Discovery Fork is the best tributary of American so far in its history. There are about 20 men working on it and good prospects are found there.

Champion Creek, or Little North Fork, is just over the divide in the Forty Mile country, by way of American Creek.

Old Silver Creek, slightly prospected on three claims, has discovered very coarse gold. The same may be said of Star, Bonson, and Cub creeks.

Comet, Bear, and Arkansas creeks have been staked out but not prospected.

Eureka Creek is the continuation of the North Fork. Little work has been done on it. The creek is staked to 8 below and 28 above, and there is room for many more.

Slate Creek enters Eureka Creek at Discovery, on the latter creek. It is 60 miles long. Discovery is 20 miles from the mouth, and from the mouth to 43 above the creek is staked and recorded. Prospect holes have been sunk at frequent intervals over this long stretch, and in no instance without finding coarse gold. The creek is said to have developed not a single "knocker" out of all the crowds who have stampeded it this last winter. The creek was staked originally about the 4th of last July, and a tributary, also thoroughly staked, that comes in near Discovery, is named Fourth of July. There are now about 50 men at work on the creek and 20 well-separated claims. Many others are engaged in taking provisions over, for the diggings are all shallow and the real work will be done this summer. In fact, the town of Eagle City is now comparatively deserted from this cause. A party of 19, known as the Buckeye Boys, who own several claims, have thoroughly prospected No. 13, below, and for a width across the creek of 60 feet they find a depth of 3 feet of gravel, which pans from 6 to 40 cents. Bedrock is 8 feet deep with 3 feet of muck.

It is estimated that 100 men will be working on the creek all summer if enough provisions can be got over while the snow lasts.

There will be a great deal of prospecting in the neighborhood this summer for quartz, a number of men having claimed to have found good indications in several places, especially on Jim Creek and on Gold Run.

Bench claims have been staked on Slate Creek, but the ground is by no means covered as yet.

The principal tributaries of Slate are Independence, Ruby, Fourth of July, Merry Christmas, and Happy New Year, on all of which the same good surface prospects have been found, though no real work is yet being done on any. There is a vast country in here that remains to be prospected. Almost nothing is known of the Middle Fork and all its tributaries. These will be invaded this summer, no doubt.

Boundary Creek is a good-sized stream that flows into the Yukon just at the boundary line. The lower half of the lower claim only lies in British territory. About a dozen men are working there and they claim to have found big prospects, but that water has troubled them all winter so that they could do little work, but they hope for better opportunity in the summer.

The district thus touched on is directly tributary to Eagle City and includes a great number of creeks that are wholly unprospected.

What prospecting has been done on any of the creeks is generally of the most superficial kind, consisting of the sinking of mere pot holes that almost run out before they reach bedrock. This has not been because of a lack of inclination on the part of the prospectors, but because of an enforced hurry. On mere prospecting tours into regions difficult of access and distant from a base of supplies men can not carry great quantities of food, and therefore must do only what they can do quickly.

The whole region remains to be really tested. Even the coming summer will not see this done, although the thousand men at work there now will see their number multiplied several times.

The Seventy Mile Country: The Seventy Mile is a big stretch of country with, on the map, more creeks to the square inch than any other division. There are about a hundred men working there, and there is a small settlement at the mouth. Nothing to cause a thrill has come out of Seventy Mile this winter. Twelve claims are being worked.

Barney Creek: Like Forty Mile and Mission, nearly all the Seventy Mile diggings are shallow and better worked during the mosquito drill. Twelve claims are being worked or made ready.

Flume Creek enters 70 miles from the opposite side from Barney, the left going up, and some miles farther up. Several claims were worked there last fall and provisions were taken in this winter for the summer campaign. Claim owners in the Forties say they have made recent good finds.

Claim owners on Crooked Creek, Broken Neck, and Pleasant creeks are cheerful and declare a staunch faith in their property.

There is a little bunch of creeks that enter the Yukon in close vicinity to each other about 30 miles below Seventy Mile. They were staked during the throes and enthusiasms of the late war time and were called Dewey, Schley, Fourth of July, McKinley, and Michigan. I wrote concerning them after my run down the river last fall. I was unable to visit them this time and can not tell whether anything has developed in line with their promise or otherwise. What they hold will, however, only be delivered in the bright summer time.

Charley River: A number of men are working on the tributaries of Charley River. On Sam Creek 11 men have been working and are said to have been finding good pay, but some of them were compelled to come out for lack of provisions. On Bonanza Creek, twelve miles up Charley River, 40 men are at work. They find encouraging colors but have not located a pay streak. Draham Creek, 4 miles from the mouth of Charley River, has 12 men working who claim to have 10 and 15 cent dirt. Todd Creek, a tributary of Draham, has developed pay. Todd, who made the discovery, claims to have gotten 60-cent pans with an average of 12.

This region from Forty Mile to Charley River comprises many hundreds of miles of watershed and many thousands of possibilities for prospectors. It need not be said that the vast area has scarcely been touched and remains as an almost unlimited opportunity to those who are equipped physically and otherwise to invade it, to meet and overcome the hard conditions it has laid upon the taking from it what it holds. It offers opportunity to these only.

My trip, which did not extend beyond the Forty-mile and Mission Creek countries, comprehended a journey of about 500 miles. I found excellent trails and road houses or miners' cabins at convenient distances for each day's travel, so as to necessitate camping out but two or three times on the whole trip, which covered a period of three weeks. This, in itself, is a long stride toward the rapid development of the country that has been taken in this one year just past.

II.

ARIZONA.

By John F. Blandy, Prescott, Ariz.

During the year 1898 there has been more active work in nearly every section of the Territory than ever before. Many of the operations have not yet reached the stage of steady production, but are so far advanced as to give promise of increased results for the future.

Valuable gold veins have been discovered in various sections, and the work done has mostly been in the form of erection of mills and machinery.

Some of the old mines of Tombstone are being reopened and very satisfactory results have been made so far, such as to warrant quite an increase for the future. There is every reason for the prosecution of active work in the district, as the ore is there in abundance, and with present facilities they can work much cheaper than when this was the leading camp of the Territory. The Pearce mine, in the same county (Cochise), has continued to be the leading producer in gold and silver in the Territory. Aside from these two camps, there is but little of the precious metals obtained in that county. The attention of the residents has been mostly drawn to the copper developments.

In Gila County there has been some progress, but the transportation facilities are so limited and the topography of that country so rough that it must be some time before their difficulties are in a measure overcome. A railroad has been built to Globe, the county seat; but that is for the copper interests, there being no gold mines of moment tributary to that point. The silver mines of that section have been idle for many years, though they are known to be second to none in the Territory.

Some gold operations have been carried on on the San Francisco River, in Graham County, but so far have yielded small returns.

In Pima County all the operations are on a very small scale and very much scattered. Much work has been done in the Oro Blanco and Arivaca districts, but the results have been small. The placer grounds around Greaterville still produce an approximate amount.

There is still a good deal of activity in the copper camps of that county.

In Pinal County there are but two mines of note, the Mammoth and Mohawk, which have been good producers for the year. Their outlet is at Tucson. The Goldfield camp, in the northwest corner of the county, which was very active a few years ago, has ceased to produce any gold. They are now erecting a cyanide plant to work the tailings of the old mills.

In Yuma County a very decided progress has been made, and this will, very likely, be the leading county in the production of gold in this or the next year. The leading mines are the Fortuna and the King of Arizona. The latter has had a five-stamp mill, and yet it returned $110,000 for the year 1898. They have had great difficulties to contend with for want of water and a haul on the desert of 35 miles. These troubles will in time be overcome, but it is slow work, as the difficulties in such climate are very great. It is undoubtedly a very rich gold field, both for placer and quartz mining. This is proven by the fact that the returns from placers and arrastras amounted to over $100,000, the placers being worked by individuals only and not by companies.

The only returns from Maricopa County are from cyanide plants and small placers. Some quartz mines are having mills built and will begin producing this year.

In Yavapai an unusual amount of activity has continued throughout the year, but some of the largest mines have fallen off in production and some of the smaller mills have been stopped. These latter had been troubled for want of capital to sufficiently develop those mines before starting the mills. Many of the smaller mines are in need of mills, or are too remote from existing mills to pay them for transportation, and therefore, are dependent upon sending their rich ores only to the samplers for sale. There are hundreds of claims opened, but the owners are unable to equip them. The most noted mines are the Congress, Crowned King, McCabe, Little Jessie, and Gladiator.

In Mohave most all the mining is for silver, the ores being very rich in that metal, but most of the work is done by leasers or "chloriders." The gold of that county comes as a by-product from the White Hills silver mine and from some small gold veins or placers.

There are some well-known gold veins, but so far they have not received the attention they deserve.

A strong company has been engaged during the year in equipping a large placer works on the Colorado River in this county, but have only lately commenced to show any returns. There is only one other company at work with machinery on placers, namely, the Sterling, on the Haasayampa, in Yavapai County. They commenced operations in November and have not yet gotten fairly under way. Although there are tens of thousands of acres of rich placer ground throughout the Territory, still the requirement of heavy capital to work them is so necessary that parties have as yet been deterred from embarking in the enterprise. What is needed are heavy pumping plants and some miles of pipe line to conduct the water to the ground. There are many individuals who use pneumatic separators, but they do not save near all the gold.

There are now fourteen cyanide plants at work in the Territory and two more are being erected. The results of the work done have been most excellent. In all cases they are working on tailings from old mills or from mills now in operation. At some of the mills the amount of copper in the tailings prevents the use of the process.

But little silver ore is being mined, aside from Mohave County. At other places the silver is a by-product from the gold, copper, and lead ores.

PRODUCTION OF ARIZONA FOR THE YEAR 1898.

County.	Gold.	Silver.
		Fine ounces.
Cochise	$239,196	1,073,606
Graham	2,965	
Gila	21,000	
Mohave	118,380	540,720
Maricopa	68,000	
Pima and Pinal	294,673	410,019
Yavapai	1,070,281	263,439
Yuma	701,215	10,000
Total	2,515,710	2,297,784

III.

CALIFORNIA.

By Charles G. Yale.

The tables appended to this chapter show the amount of precious metals produced in California during the calendar year 1898, the figures being obtained from returns by producers to the San Francisco mint. According to said returns, the yield of the State was as follows:

Gold	$15,906,478
Silver (commercial value)	414,055
Total	16,320,533

Comparing these with figures obtained from the same source in 1897, the gold yield shows a gain of $35,077 and the silver shows a loss of $38,734, making a net loss of $3,657, so that the output for the two years is practically the same. For two successive seasons California has experienced a drought, the rainfull being slight as compared with the usual conditions. This had a serious effect on the gold-mining industry in the State, as ditches ran dry, reservoirs were only partly filled, and many mines were compelled to close down for months in succession. With the quartz mills it became necessary to "hang up" part of the stamps and only run those which there was power to drive, and during the driest part of the year the mills in many places were entirely idle. Of course some of the large plants were provided so as to work either by steam or water power, and when the water supply failed the steam was used, so that no reduction in output resulted. But wherever they depended entirely on water, or electrical power derived from water, they either had to close down altogether, part of the time, or operate only a portion of their milling capacity. In a number of cases in the larger mines during the past two years auxiliary steam power has been provided in order to avoid possible curtailment of operations during dry seasons.

In the case of hydraulic and placer operations the shortness of the water season has reduced their gold yield materially. This class of mining is confined mainly to the central and northern part of the State, and there the falling off in yield is the most marked. In the case of many hydraulic mines, which usually have several months washing season, they only had a few weeks during 1898 in which they had water for handling their gravel. Gulch and ravine mining suffered in the same way. The very light snow fall in the mountainous regions during the winter of 1897–98 and the warm weather in early spring left little storage supply to continue into the summer months, when there is no rain. As a consequence, the mountain reservoirs for supplying the mining ditches were only partly filled, and there was a shortness of water throughout the State. Many of the large ditches ran dry several months before the usual time, and they could not supply the miners along their routes. As a result, the miners had to stop altogether or only run a short time. Occasion was taken, however, to repair and enlarge the ditch systems in all of the mining counties, which will result in benefit for the future.

The river-bed miners were the only ones to whom this state of affairs was of benefit. The streams all ran lower than for many years, and these men were enabled to reach bars and beds usually inaccessible, thus making up in part for the reduced gold yield from larger operations. This class of mining, however, is confined to a few localities in certain counties and no large number of men engage in it.

While many of the larger quartz properties of the State show a reduced yield as compared with the previous year, it is worthy of note that quite a number of new producers have come to the front, some of them with very material yields. It is this fact which accounts for the aggregate gold yield of the State remaining almost the same during the past two years. However, an increased yield is shown from some of the southern counties, where they never depend on water for power, so that the dry season did not affect them as seriously as was the case farther north.

Along the Mother Lode section of the State, in Amador, Tuolumne, Calaveras, Eldorado, and Mariposa counties, some very large operations have been commenced of late, with heavy investments of capital.

Some of the properties have not yet been brought to a productive stage, while others have. In most of these cases the mines are those which were worked in early years of mining in California and were eventually given up and allowed to lie idle many years. Under the changed conditions now existing, with improved appliances and systems, both metallurgical and mining, these claims are made to pay handsomely, especially where abundant capital admits of deep work and proper development of the mine. Such mines are now reopened to a depth of 1,500 or 1,600 feet without stopping to drift or crosscut, and heavy permanent hoisting and pumping plants are provided at once. Several such mines are being reopened on a large scale and will shortly become producers.

In the year 1898 there were thirty-one counties in the State of California which produced gold, and there was a product of silver also from twenty of these. Of the thirty-one counties seven produced over a million dollars each in precious metals, and one of these exceeded the two-million-dollar mark. Nevada County, which held the leading place in 1896 and 1897, still maintains its position as the largest gold producer among the counties of the State. Amador County, which was fifth in rank in 1897, now takes second place, followed closely by Tuolumne, which is third. The fourth county in rank among those producing over a million dollars is Placer, which was third in 1897. Shasta County, which is fifth, now for the first time takes a place among the counties yielding over a million. The sixth is Kern County, which also appears on the same list for the first time. Calaveras drops back from fourth to seventh place. Trinity, which was in this list of honor in 1897, drops below the million mark in 1898.

Comparing the returns received at the San Francisco mint from producers in 1898 with similar ones received in 1897, it is seen that Amador County shows an increased gold product over the previous year of $481,890 and lost in amount of silver product $1,735, making a total increase of $480,155. This shows the largest increase of any county in the State. This is essentially a quartz-mining county and some of the most productive mines in the Mother Lode are within its borders. Some of the recently reopened mines have become large producers of late, which accounts for the notable increase in gold yield. Among the most productive mines in this county are the Argonaut, Kennedy, Zeile, at Jackson; Keystone, at Amador City; and South Eureka, Wildman, and Mahoney, at Sutter Creek.

As the gold from Butte County is mainly derived from auriferous gravel, the lack of water reduced washing facilities, so that the county shows a falling off in gold product of $152,517 from the previous year. The slight gain of $1,432 in silver was made, so the total lessening of product was $151,085. A number of dredging machines have been put at work near Oroville, in this county, though most of them did not commence operations until after the close of 1898. The facilities for carrying on this kind of mining are excellent in the locality named, and several more dredgers are being built for use there. There is only one large producer among the quartz mines in the county, the Gold Bank, at Forbestown. Most of the gold comes from gravel deposits worked by drifting or hydraulic process or from open-surface placers on river beds.

Calaveras County shows the largest falling off in gold yield of any county in the State, the amount being $420,831, or, with the silver gain of $1,687, a total decline of $419,151. The water supply in the ditch which supplies the quartz mine at Angels, the principal gold camp, became very short, and occasion was taken to repair and enlarge the ditch, thus shutting down for a time the largest gold producing mine in the State, the Utica, as well as other mines and mills. This accounts mainly for the large falling off. The second mine in point of product in the county, the Gwin, was also compelled to curtail its milling operations, owing to short water supply, and many other mines were in the same predicament.

Del Norte County, the mines of which are placer and ocean beach, suffered a reduction of $7,653 in gold from the figures of the previous year.

A material falling off in gold produced is shown in Eldorado County, the amount being $172,660, but the increase in silver yield of $3,288 reduced the total decrease to $169,372. Both the placer and quartz mines made reduced yields, owing to short water supply, part of the stamps in most of the mills having been "hung up" for some months.

Fresno County shows a reduction in total gold yield from previous year of $15,587, the small mines throughout the county producing smaller amounts than in 1897.

Humboldt County has mainly placer and hydraulic mines, which are never so productive when the water season is short, so that the county shows a reduction in yield of $37,537.

The gold yield of Inyo County was $22,733 less than in 1897, but the silver yield was $23,440 more, so that the county shows the small increased total production of $707. A great deal of prospecting is being done throughout this county, where most of the mines are operated by their owners without capital. Some of the old abandoned districts are being reopened and developed more thoroughly than when before worked.

Kern County mining affairs have been very active during 1898, and the county shows an increased gold yield of $263,617, but with the loss of $3,928 in silver the total gain over the previous year is $259,689.

The largest producing section is around Randsburg and Johannesburg, which has only been a few years in existence, but where several very prominent producers have been developed, notably the Yellow Aster group, which gives the largest yield in the county. The "Stringer district" of this section has many small but rich veins, the aggregate yield of which is considerable. Around Havilah and Vaughn, also, are many small mines. The largest producers around Randsburg are the Yellow Aster, Wedge, Little Butte and Butte, Good Hope, and Scott's mines. The largest producers around Havilah are the Ophir, Tiptop, and Flying Dutchman; at Kernville, the Sumner and Big Blue, and at Vaughn, the Glen Olive and White Star. It is probable that an increased gold yield may be looked for next year from this county, as a great number of prospects are being developed throughout quite an extensive region where little prospecting has heretofore been done.

In Lassen County the quartz mines show an aggregate reduced yield for the year of $11,640 on gold and $550 silver, a total of $12,190.

In Los Angeles County the yield of the few producing mines at Acton was small, as was the case at Gorman. The largest proportion of the gold came from the placer around Newhall. Altogether, the yield of the county shows a falling off of $19,398 from that of the previous year.

There are few mines operating on a large scale in Madera County, most of them being small quartz properties worked by their owners. The increase in product for 1898 over 1897 is $8,971.

Mariposa County shows a reduced yield amounting to $115,009 in gold and a small gain in silver of $332, making a total reduction for the year of $114,676. The principal quartz mines of the county are the Merced Company, Louisiana, Virginia, and Compromise, at Coulterville; the Mount Gaines, at Hornitos, and the Whitlock and Alabama, at Mariposa. Some of the larger mines were not as productive in 1898 as the year previous, and all the smaller operations suffered from lack of water.

Mono County shows a lessened yield of $74,084 in gold and $5,824 silver, a total reduction of $79,908. The most prominent producers are the Standard, at Bodie; Cornucopia and Borasca, at Benton, and Jackson and Lakeview, at Lundy. The cyanide plants working tailings did not produce as much as the previous year, nor did the small quartz and placer claims throughout the county.

The largest gold yield of any county in the State in 1898 was made by Nevada, the amount exceeding $2,000,000. This was the only county producing over that amount. The gain in gold over the previous year was $132,277 and silver $11,360, making a total gain of $143,737 for the year. Quartz, hydraulic, drift, and placer mines are worked for gold in this county, some of the operations being on a very large scale. The principal producing quartz mines are the North Star, Empire, W. Y. O. D., Maryland Consolodated, Omaha, Menlo, Brunswick, and Pennsylvania, at Grass Valley; the Champion, Providence, Reward, Mayflower, and Reddick, at Nevada City; Gaston Ridge, at Graniteville; Eagle Bird, at Maybert, and Spanish, at Washington. Among the leading gravel mines are the Harmony and Red Dog, at Nevada City; North Bloomfield and Union, at North Bloomfield, and Kate Hayes, at North San Juan.

Placer County, where there are more gravel than quartz mines, shows a reduction in gold yield of $36,919 and in silver $1,114, a total of $38,033. In this county are some of the most productive drift mines in the State, notably the Morning Star, Hidden Treasure, Big Dipper, Paragon, and Red Point. These mines are on the Forest Hill and Iowa Hill divides. The principal center of quartz mining is Ophir. The main gravel mining regions are around Michigan Bluff and Iowa Hill.

Plumas County shows an increased yield of gold of $30,357, but with the slight loss in silver of $701 the total increase is $29,656.

While there are some quartz mines in this county, most of the gold is derived from auriferous gravel. There are no very large single producers in Plumas, but numbers of small claims worked by their owners. Chinese miners are numerous in this county.

Riverside County shows a gain of $41,961 in gold and a loss of $2,616 in silver, a total gain of $39,345. Mining operations in this county are confined to quartz, and the principal seat of this kind of mining is at Perris. There are mines also at Banning, Indio, Leon, and in the region back of Salton.

Sacramento County has hydraulic and placer mines only, and the dry season accounts for the reduction in gold output from the previous year of $35,749.

San Bernardino County shows a gain in gold product of $161,000 and a loss in silver of $22,407, being a total increase of $138,732.

The famous camp of Calico, where millions of dollars in silver have been produced, is now practically abandoned, a few tributers only being at work in the old mines. There are many small properties scattered in the districts throughout the large county, but the principal mining locality is around Victor.

San Diego County gains over the previous year $80,868 in gold and $300 in silver, a total of $81,168. This is essentially a quartz-mining county. The Free Gold or Golden Cross mine at Hedges is one of the most productive quartz properties in the State. While the ore is of low grade it is very abundant and the ore crushing facilities very large. Mines are more numerous at the camps of Banner or Julien, but the one large mine at Hedges far exceeds their aggregate output.

There are productive mines at Picacho and Senator and a few at Escondido. At Ogilby a considerable amount of gold is being obtained from tailings by the cyanide process, and a cyanide plant has also been put up at Cuyamaca to work over the tailings of the Stonewall mine.

The dry season so affected the few placers at La Panza, San Luis Obispo County, that only about $1,000 was produced, which is $1,500 less than during the previous year.

It is estimated that about $1,000 was obtained from the ocean-beach mines at Lompoc, Santa Barbara County, which is $2,000 less than in 1897.

Shasta appears this year for the first time in the list of counties producing over a million dollars. Its gain in gold over 1897 is $291,109, and in silver $74,899, a total increase of $366,008.

This increase is mainly the result of the operations of the Mountain Copper Mines, Limited, which, requiring siliceous ores for flux in the smelting operations, has caused many quartz claims to be started up and utilized their ores. Much of the ore in this county is not "free milling," and cost of transportation to the smelters at Port Costa has prevented many mines being worked. Now, however, that the extensive smelting operations of the Mountain Copper Company at Keswick, within the borders of the county, admit of the miners disposing of their ores at home, even the very low-grade properties may be worked.

Two of the very large quartz mines of the county have become non-productive during the past year, but the amount of their former output has been more than accounted for by the newer claims worked, not only around Keswick, but at Knob, French Gulch, Buckeye, Shasta, and Whitehouse. In fact, the bulk of the product of the county is now coming from mines hardly known five years ago. The existence of the extensive deposits of copper ore at Iron Mountain has been known for over forty years, but it has remained for an English corporation to furnish the capital for utilizing them. Their operations, involving large expenditures of capital for development, plant, etc., have attracted attention to the mining possibilities of the northwestern counties, and particularly of Shasta County. When considering the total value of all mineral products per annum, including gold, silver, copper, etc., Shasta is far in the lead of all the other counties of the State. No better example could be cited of the advantage of the investment of large capital in mining operations.

Sierra County shows a gain in gold output of $28,855, and in silver of $473, a total increase of $29,328. The principal quartz producers are at Alleghany, Johansville, and Sierra City, but a large proportion of the gold comes from hydraulic, drift, river, tailings, and other placer operations. The largest number of producing mines are in the region around Downieville.

Siskiyou County shows less reduction in total output than might have been expected in a region where gravel mining predominates, and where a dry season prevailed. The loss in gold yield from previous year was $73,319, and the gain in silver $287, making a total reduction of $73,032. There are no exceptionally large producing mines in this county, but there are very many small properties, principally hydraulic, drift, river bed, and other placer claims. Some successful river dredging is being done and more machines are contemplated.

The few placer mines around Knights Ferry and La Grange, in Stanislaus County, made an output of $17,992 less than in 1897.

Trinity County shows a reduced yield from previous year of $219,117 gold, and a gain of $55 in silver, a total reduction of $219,062. As this is essentially a gravel mining county, the short water season had a disastrous effect on the gold mining industry.

Some hydraulic mines, which usually have several months' washing season, only had a few weeks in 1898, with the general result of quite a serious deficit in gold yield for the year. There are large numbers of small mines throughout the various camps in this county, and many Chinese are at work.

Tulare County loses $430 in gold and $214 in silver, a total deficit of $644. The few mines producing in the county are at White River, and are all quartz.

Tuolumne County shows a reduction in product of gold of $74,619, and a gain in silver of $13,886, making the total falling off from previous year of $60,733. Numbers of new producing mines have been opened in this county within the past few years, but the dry season caused the "hanging up" of many stamps in the mills, thus reducing the expected gold yield of the year.

The mines of Yuba County are, with few exceptions, placer, hydraulic, and drift, and they made an increased yield for the year 1898 of $25,227 over that of the year 1897.

The following table shows the output of gold and silver in California for the years 1897 and 1898, with the gains and losses of the respective counties for 1898, as compared with the year 1897, the figures being taken from returns by producers to the United States mint at San Francisco:

COMPARATIVE OUTPUT OF CALIFORNIA FOR TWO YEARS, 1897 AND 1898.

County.	1897.	1898.	Increase.	Decrease.
Amador	$1,327,950	$1,808,105	$480,155	....
Butte	674,910	523,825	....	$151,085
Calaveras	1,441,606	1,022,455	....	419,151
Del Norte	16,710	9,057	....	7,653
El Dorado	675,512	506,140	....	169,372
Fresno	43,144	27,557	....	15,587
Humboldt	95,049	57,512	....	37,537
Inyo	209,903	210,610	707	....
Kern	764,784	1,024,473	259,689	....
Lassen	49,950	37,760	....	12,190
Los Angeles	40,698	21,300	....	19,398
Madera	85,963	94,934	8,971	....
Mariposa	452,087	337,411	....	114,676
Mono	592,592	512,684	....	79,908
Nevada	1,893,367	2,037.104	143,737	....
Placer	1,531,725	1,493,692	....	38,033
Plumas	339,953	369,609	29,656	....
Riverside	151,227	190,572	39,345	....
Sacramento	93,050	57,301	....	35,749
San Bernardino	154,780	293,512	138,732	....
San Diego	592,328	673,496	81,168	....
San Luis Obispo	2,500	1,000	....	1,500
Santa Barbara	3,000	1,000	....	2,000
Shasta	665,940	1,031,948	366,008	....
Sierra	370,254	399,582	29,328	....
Siskiyou	842.157	769,125	....	73,032
Stanislaus	37,392	19,400	....	17,992
Trinity	1,078,631	859,569	....	219,062
Tulare	13,044	12,400	....	644
Tuolumne	1,811,268	1,750,535	....	60,733
Yuba	141,638	166,865	25,227	....
Undistributed	131,078	....	....	131,078
Total	16,324,190	16,320,533	1,602,723	1,606,380
Total decrease for 1898	....	....	....	3,657

The relative importance of the different kinds of gold mining carried on in the counties of California, is a matter of interest as to the origin of the metal, whether from alluvial washings or rock in place. The appended table shows that not only is quartz mining by far the most important branch of the gold mining industry, but that the importance is steadily on the increase as compared with other forms. Comparing these figures of source of gold and silver for 1898 with corresponding ones for the previous year, it is seen that quartz mining shows a gain of $1,098,191; placer mining a loss of $538,441; hydraulic mining a loss of $388,896; and drift mining a loss of $174,511. It must be remembered, however, that placer, drift, and hydraulic mining suffered more proportionately from the very dry seasons than did quartz mining, since these forms of alluvial washing depend in a very large measure on a abundant water supply for successful work.

It is somewhat difficult to separate properly, in the returns, these forms of gravel mining, as many simply say in response to the questions, "placer," when they may be engaged in drift or hydraulic mining. For this and the further reason that unless otherwise specified, the Chinese are enumerated as "placer miners" (since they never work quartz), some of the gold attributed to "placers" may have come from hydraulic or drift claims. The drift and hydraulic tailings being worked by Chinese in various places are also tabled under the heading of "placer." The surface placers include bars, river beds, ravines, gulches, flats, etc., while the hydraulic and drift mines are deep gravels, the drift mines being covered with a lave capping which prevents the banks of gravel being washed by the hydraulic process.

What gold was obtained by dredging machines is classed under "placer." Only a few of these machines were working in California during 1898, but others have been completed since the close of that year and several more are being built. The aggregate yield from this source is not as yet very important.

The following table will show in detail, by counties, the source of gold and silver in California in 1898:

SOURCE OF GOLD AND SILVER IN CALIFORNIA, 1898.

County.	Placer.	Hydraulic.	Quartz.	Drift.
Amador	$15, 500		$1, 792, 605	
Butte	197, 400	$1, 550	277, 242	$47, 633
Calaveras	33, 400	26, 154	957, 401	5, 500
Del Norte	9, 057			
Eldorado	48, 913	17, 188	432, 454	7, 585
Fresno	8, 000	319	19, 238	
Humboldt	39, 293	18, 219		
Inyo	31, 000		179, 610	
Kern	33, 900		990, 033	540
Lassen	160		37, 600	
Los Angeles	13, 000		8, 300	
Madera	3, 800		91, 134	
Mariposa	17, 955		319, 456	
Mono	2, 500		510, 184	
Nevada	62, 550	146, 091	1, 751, 598	76, 865
Placer	380, 594	30, 704	341, 602	740, 792
Plumas	126, 140	79, 797	141, 415	22, 257
Riverside			190, 572	
Sacramento	42, 301	15, 000		
San Bernardino	5, 000		288, 512	
San Diego	30, 000		643, 496	
San Luis Obispo	1, 000			
Santa Barbara	1, 000			
Shasta	16, 300	1, 015	1, 014, 633	
Sierra	98, 279	48, 610	194, 230	58, 463
Siskiyou	224, 112	224, 450	258, 469	62, 094
Stanislaus	19, 400			
Trinity	227, 322	348, 642	281, 055	2, 550
Tulare			12, 400	
Tuolumne	12, 453		1, 738, 082	
Yuba	141, 144	4, 453	17, 000	4, 268
Total	1, 841, 473	962, 192	12, 488, 321	1, 028, 547

PRODUCT OF CALIFORNIA, BY COUNTIES, 1898.

RECAPITULATION.

County.	Gold.	Silver.	Total.
Amador	$1, 806, 363	$1, 742	$1, 808, 105
Butte	514, 508	9, 317	523, 825
Calaveras	1, 019, 023	3, 432	1, 022, 455
Del Norte	9, 057		9, 057
Eldorado	501, 966	4, 174	506, 140
Fresno	27, 557		27, 557
Humboldt	57, 512		57, 512
Inyo	137, 107	73, 503	210, 610
Kern	1, 017, 930	6, 543	1, 024, 473
Lassen	37. 460	300	37, 760
Los Angeles	21, 300		21, 300
Madera	94, 884	50	94, 934
Mariposa	336, 418	993	337, 411
Mono	446, 017	66. 667	512, 684
Nevada	2, 017, 628	19, 476	2, 037, 104
Placer	1, 488, 022	5, 670	1, 493, 692
Plumas	369, 609		369, 609
Riverside	189, 188	1, 384	190, 572
Sacramento	57, 301		57, 301
San Bernardino	261, 512	32, 000	293, 512
San Diego	673, 196	300	673, 496
San Luis Obispo	1, 000		1, 000

PRODUCT OF CALIFORNIA, BY COUNTIES, 1898—Continued.

RECAPITULATION—Continued.

County.	Gold.	Silver.	Total.
Santa Barbara	$1,000	....	$1,000
Shasta	860,180	$171,768	1,031,948
Sierra	399,063	519	399,582
Siskiyou	768,804	321	769,125
Stanislaus	19,400	....	19,400
Trinity	859,255	314	859,569
Tulare	12,400	....	12,400
Tuolumne	1,734,953	15,582	1,750,535
Yuba	166,865	....	166,865
Total	15,906,478	414,055	16,320,533

As a matter of interest, to show the variety of the mineral products of California and their value, aside from gold and silver, the following table is given, as issued by the California State mining bureau for the year 1898:

MINERAL PRODUCT OF CALIFORNIA FOR 1898.

Description.		Quantity.	Value.
Asbestus	tons	10	$200
Antimony	do	40	1,200
Asphalt	do	25,960	482,175
Bituminous rock	do	46,836	137,575
Borax	do	8,300	1,153,000
Cement	barrels	50,000	150,000
Brick	M	100,102	571,362
Clay, pottery	tons	28,947	33,747
Coal	do	143,045	337,475
Copper	pounds	21,543,229	2,475,168
Gold		....	15,906,478
Granite	cubic feet	98,369	147,732
Gypsum	tons	3,100	23,600
Lead	pounds	655,000	23,907
Lime	barrels	297,860	254,010
Limestone	tons	27,686	24,548
Macadam	do	452,691	369,082
Magnesite	do	1,263	19,075
Manganese	do	440	2,102
Marble	cubic feet	8,050	23,594
Mineral paint	tons	653	9,698
Mineral waters	gallons	1,429,809	213,817
Natural gas		....	74,424
Paving blocks	M	1,144	21,725
Platinum	ounces	300	1,800
Petroleum	barrels	2,249,088	2,376,420
Pyrites	tons	6,000	30,000
Quicksilver	flasks	31,092	1,188,626
Rubble	tons	724,674	445,395
Salt	do	93,421	170,855
Sandstone	cubic feet	37,264	46,384
Serpentine	do	750	3,000
Silver		....	414,055
Slate	squares	400	2,800
Soda	tons	7,000	154,000
Sulphur	do	2	50
Total		....	27,289,079

There is considerable variation in the rate of wages paid miners in the different camps of the counties of California. In most places they are paid by the day, but in some counties it is the custom to pay a certain sum per month, with or without board. The Chinese are paid smaller wages than the whites and always board themselves.

As a general rule, however, these men work for themselves or Chinese companies, leasing or buying placer or hydraulic ground from the whites.

They are able to make satisfactory wages from ground abandoned by white miners or from tailings from large mines. The highest wages are paid to white miners in the quartz mines who work under ground, the surface men getting less pay. As a general proposition, wages are smaller in the gravel mines than those of quartz.

In Amador County the prevailing rate seems to be $2.50 per day for skilled miners, though some get $2.75. In Butte County, where there are numerous gravel mines, wages run lower and vary from $1.50 per day to $2 per day and board, and $2.50 without board. Some quartz miners get $3 per day and some others $50 per month. In one quartz mine company of about 300 men the pay averages $3.16 per day.

In the larger mines in Calaveras County underground men get $3 per day, and in others the rate varies from $2 to $2.25, $2.50, and $2.75, according to class of work. In Del Norte County a good many are paid $40 per month and the Chinese $1 per day; only placer and ocean beach mines are worked. In Eldorado County the prevailing rate is $2.50 per day, with few exceptions of $3, and running from that down to $2.25 and even $1.75 per day. In Fresno most of the men are working on their own accord, but those who work for wages get $2 or $2 a day and board. In Humboldt, a placer-mining county, wages are low, varying from $1 a day and board to $1.25 and $1.75. Some are paid $30 and others $35 a month and board. More or less black-sand mining is done on the ocean beaches in this county. In Inyo County wages vary in the different camps from $2 to $2.50 and $3 per day. In Kern County the wages in the larger camps for miners are $3 per day, but in some places $2.50 is paid, and even $1 and $2 per day and board.

In Lassen County miners' wages are $2.50 per day; in Los Angeles, for quartz mines, $2.50 per day, and in placers, $1.50 per day and board. Madera County miners mainly work for themselves, but those working for daily wages get $2. The large mines at Coulterville, Mariposa County, pay $3 per day, but elsewhere the prevailing rate is $2.50. Some men work for monthly wages of $65. Mono County pays the highest wages in the State, the prevailing rate being $4, though there are instances where they are paid $3 and $3.50. The quartz miners at Grass Valley, Nevada City, Graniteville, and Washington, in Nevada County, get $3 per day; but in the gravel mines in other camps they are paid $2, $2.25, and $2.50, and Chinese, $1.50. In Placer County in a few places they get $2.75 and $3, but the general rate is $2.50 per day. In Plumas County there is quite a variation. In some places they pay $40 and others $50 per month. In a few mines they pay $3, running from that to $2.50 and board to $1.50 and board, and the Chinese get $1.50 and board themselves. Riverside County pays $3 or $2 and board and $2.50 per day. Most of the Sacramento County miners are Chinese at $1.50 per day, though many miners are working their own claims. In San Bernardino miners' wages vary from $2.50 to $3 and $3.50 per day. The larger properties in San Diego County, at Hedges and Senator, pay $3 per day, but at Banner and Julian the pay is $2.50 to $2.75 per day. In Shasta County the prevailing rate for quartz miners is $2.50 per day, though in some cases they pay $40 to $50 per month with board. In Sierra County there is quite a variation. In some places they pay $3 per day and from that down to $2.50, $2, $1.75, and $1.50. At some mines they pay $45 to $50 per month with board. Siskiyou County also varies in pay of miners. At some quartz mines they pay $40 per month and board for whites, and $1 per day for Chinese. In other places they pay $2.50 and $2.75 per day. The general rate, however, is from $2 to $2.50 per day, with Chinese

$1.50, $1.15, or $1 per day. In other places they pay $40 to $45 per month and board. In some localities in Trinity County they pay quartz miners $50 and gravel miners $40 per month and board, and daily wages run from $2.75 to $2.50 and $2.25 and $2 per day, according to class of work. In Tulare County the rate is $2.50 per day for quartz miners. In Tuolumne County the prevailing rate is $3 per day, but some are paid $2.75 and $2.50. In Yuba the rate varies from $2.50 to $2 per day.

The annexed table shows approximately the number of men employed in the gold, silver, lead, and copper mines of California in 1898.

As compared with 1897 an increase of 3,060 is shown. This includes 1,200 men at work in the copper mines and smelting works at Keswick, Shasta County. The table is made from returns on the blanks sent to producers from the United States mint at San Francisco, and also answers from postmasters, express agents, bankers, gold-dust buyers, and others in the numerous camps in the different counties. The answers in 1898 were more complete than in the previous year, which in a measure accounts for the apparent increase, but even then it is possible that omission is made of many prospectors and persons mining in a small way on their own account.

NUMBER OF MINERS EMPLOYED IN CALIFORNIA DURING 1898.

County.	Number of miners.	County.	Number of miners.
Amador	1,220	Riverside	225
Butte	887	Sacramento	140
Calaveras	1,286	San Bernardino	468
Del Norte	45	San Diego	590
Eldorado	1,110	San Luis Obispo	10
Fresno	161	Santa Barbara	10
Humboldt	105	Shasta	1,948
Inyo	277	Sierra	545
Kern	1,060	Siskiyou	1,429
Lassen	55	Stanislaus	15
Los Angeles	72	Trinity	1,205
Madera	148	Tulare	50
Mariposa	814	Tuolumne	1,637
Mono	248	Yuba	290
Nevada	1,949		
Placer	1,248	Total	19,823
Plumas	576		

IV.

COLORADO.

By James L. Hodges,
Assayer in charge United States mint, Denver, Colo.

Colorado's product for the calendar year 1898 was valued as follows:

Gold (at $20.67 per fine ounce)	$23,512,819
Silver (coining value $1.29 per ounce)	29,971,830
Lead (at $0.0363 per pound)	4,221,131
Copper (at 12 cents per pound)	1,413,136
Total	59,118,916

The gains recorded over the production of 1897 were as follows:

Gold	$3,940,682
Silver	2,793,355
Lead	1,447,728
Copper	459,876

During the year there were more men employed in the mining industry than in any previous year of the State's history.

Noteworthy data from the principal districts are as follows:

BOULDER COUNTY.

Boulder County occupies a north-central position in the State, 32 miles long and 24 miles wide. Boulder is the county seat, 29 miles northwest of Denver. The western half of the county is mountainous, and here are the mining districts. The eastern part affords large returns to the agriculturists. In the east and southeast sections, valuable coal deposits exist which are worked extensively.

Both gold and silver are mined, the former predominating. The county is drained by St. Vrain, Boulder, and Coal creeks and their numerous tributaries. The mountainous sections are made up of the granite-gneiss complex common to the Rocky Mountain Range, and are traversed by a series of dikes. The main dikes are strong, large, and porphyritic in character.

The veins are fissures, closely associated with the dikes, running practically parallel therewith. The ore occurs in chutes. The county is noted for its varied telluride ores.

The most notable event of the year 1898 was the completion of the Colorado and Northwestern Railroad through to Ward, touching many of the principal mining camps between Boulder and that station. New life is noticed all along its line, and large shipments of low-grade ore have been made possible and profitable. A branch from Bloomerville, one mile long, now practically completed, will tap the Adit Tunnel and Dew Drop group of mines. Another branch will connect Camp Frances.

In Boulder County are employed 1,687 men, the pay of miners ranging from $2.50 to $2.75. Engineers and timbermen receive $3 and $3.25. At least 35 per cent of the mines are worked on leases.

There were twelve accidents during the year, five of which were fatal. Fifteen sales aggregated $170,000. The deepest explorations range from 500 to 900 feet, values increasing with depth. In one instance 1,100 feet was reached.

The county produced 491,503 tons of coal, despite labor difficulties. The number of acres devoted to coal mining is 3,402; agriculture, 120,923; and grazing, 90,980.

Fully one-third of the mineral-bearing territory is undeveloped. Seventy-five per cent of the money invested is Colorado capital.

The mines are free from gases and practically dry, although water is encountered in the early spring, when steam pumps are used.

Over 90 per cent of the power is steam. The records show 790 mining claims, 43 placer claims, and 84 mill sites, for which United States patents have been obtained. About 250 claims were worked during the year, 100 proving shippers. The placer beds were worked at irregular intervals during the summer months, and yielded about $50,000.

ELDORA DISTRICT.

The new district of Eldora made steady progress. Many of the ores carry considerable tellurium of high grade. The Mogul tunnel is in 850 feet and the same distance below the surface, and is designed to furnish drainage and transportation to the principal properties of the district.

A new 50-ton chlorination mill was erected at a cost of $80,000, and a smelter will be added in the spring of 1899. The new shaft houses and plants of machinery cost $25,000.

The camp employs 250 men and shipments amounted to $100,000. This camp will be materially benefited by the proposed railroad. The freighting by wagon to Boulder, 22 miles, renders the many tons of low-grade ore on the dumps practically worthless until insured railroad facilities.

WARD DISTRICT.

At Ward much attention was given to development. The entering of the Colorado and Northwestern Railroad marked the reduction of shipping rates and stimulated mining generally. From this station were shipped 3,112 tons of ore during the last six months of the year, one-third of which was milling, worth $12 per ton, and the remainder smelting, running $65 per ton. The stamp mills treated 5,000 tons of $12 ore.

The Ward pyritic smelter was erected at a cost of $50,000, and has a capacity of 100 tons per day. There were twelve sales aggregating $137,000. Nine new shaft houses and plants of machinery were erected. Ward has a population of 800.

GOLD HILL DISTRICT.

In the Gold Hill district the work was confined chiefly to the older properties.

Little improvement was made in Caribou, and Longs Peak district saw only the necessary annual assessment work done.

Wall Street district noted much activity, and several new plants of machinery were installed.

In Salina, Netherland, and Magnolia districts 80 per cent of the work is done by leasers.

MILLING OPERATIONS.

Notwithstanding the large sums expended during the year in the treatment of Boulder's ore, the basic principles involved conformed closely to the early methods, varying somewhat in application. All have merit.

The cyanide mills did well in the treatment of decomposed or surface ores, but failed to perfectly handle live ore, and the three mills of that class were closed down. The county is bountifully provided with new and old process mills. In many instances the erection of mills antedated the discovery of the contiguous mining properties.

A spirit looking to the development of mines for sale rather than for profit from working same, it is alleged, served somewhat to minimize the county's production. Now that the ores are better understood, an advance may be looked for in 1899.

SAMPLERS.

Two public sampling works, the Chamberlain, of 70 tons capacity, and the Kilton, 75 tons capacity, are located at Boulder. These, with the reduction plants at hand, furnished a good market for all ores produced.

Name of works.	District.	Character.	Daily capacity.
			Tons.
Livingstone[1]	Sugar Loaf	Cyanide	20
Nellie Bly[1]	Magnolia	Bromide	20
Coburn[1]	do	Cyanide	30
Monell[1]	Sunset	5 stamps	10
Free Coinage[1]	Gold Hill	do	10
Orphan Boy[1]	do	20 stamps	40
Wood Tunnel	do	10 stamps, tables	20
Salina	do	do	20
Cash	do	do	20
Gray Eagle	do	Electric belt	10
Prussian[1]	do	Cyanide	20
Gale	do	30 stamps, tables	50
Prince Arthur	do	10 stamps, tables	20
Muller	Ward	do	20
Humboldt	do	do	18
Montgomery	do	do	18
San Blas[1]	do	do	20
Dew Drop[1]	do	Jigs	100
Modoc[1]	do	30 stamps, tables	60
Boston[1]	do	40 stamps, tables	75
Madeline[1]	do	50 stamps, tables	100
Giles	do	10 stamps, tables	25
Ruby[1]	do	do	25
Binford	do	do	20
Utica	do	20 stamps, tables	30
Pennsylvania	Boulder	50 stamps, tables	200
Forest	do	10 stamps, tables	20
Kilton[1]	do	Chlorination	12
Delano[1]	do	do	50
New mills of 1898.			
Culbertson	Near Boulder	60 stamps, tables	100
Midget	Netherland	30 stamps, tables	50
Eldora	Eldora	Chlorination	50
Silent Friend	Ward	20 stamps, tables	30
Amalgam Company	Sugar Loaf	Chlorination	30
Ward Smelter	Ward	do	100

[1] Idle.

CLEAR CREEK COUNTY.

Clear Creek County enjoys the distinction of having embraced the first "pay placer beds" in the State. In 1864 veins rich in silver were discovered above Georgetown, and the following year found the "placer diggings" almost deserted. The development from 1877 to 1890 was rapid. The financial panic of 1893 and fall in the price of silver militated for the time being against mining. The eastern end of the country first recovered, and since then the imaginary line that separated the gold and silver belts of the county has been gradually moved back, until to-day gold and silver are found throughout the entire county. The north line is defined by a chain of mountains that separates Clear Creek and Gilpin counties, ending at the forks of the creek. The main drainage is through Clear Creek. This stream, near the western boundary, divides into North, Middle, and South forks. The main tributaries on the north are Mill Creek and Fall River; on the south, Chicago Creek. The southeast part of the county is drained by Bear Creek and tributaries.

The county is made up on the granite-gneiss complex, common to the Front Range, and the topography is extremely rugged. The county is traversed by a series of porphyritic dikes, trending from northeast to northwest. The mineral-bearing veins are of the true fissure type. In places the dikes form one wall to the veins, and the veins retain their identity. In others the dike practically becomes the vein. Where two or more dikes of different age intersect, and later a vein bisects the whole, the vein loses its identity and the result is a large body charged with sulphide ores, carrying low values.

The veins of the county in general comply with the accepted requirements of the miner for true fissures, viz, "smooth walls" and "ore in streaks." They carry two distinct classes of ore, smelting and milling. In common with fissure vein sections, the values are found in chutes, concentrating at points.

The main line of travel and transportation is along Clear Creek. Two daily trains handle the passenger traffic and afford easy access to the leading mining camps—Forks Creek, Floyd Hill, Dumont, Lawson, Empire, Georgetown, The Loop, and Silver Plume.

The proposition of tunneling the mountains to reach their lodes continued to receive much attention. Twenty tunnels were driven to cut blind leads in prospecting and also to reach the known mineral-bearing veins. It is a question of cheaper mining of ores, and enters largely into the estimates of the future of the county.

Three of the tunnels now being driven have for their ultimate ending the large mines of Gilpin County and will be between 3 and 4½ miles in length. Each will tap the Gilpin County belt at a different point, and probably cut many of the strong veins.

The great success of the Lamartine tunnel has proved the vast possibilities of such undertakings.

The Newhouse tunnel, now directed by English capital, is in 7,000 feet and has its surface end at Idaho Springs. Its terminus will be under Central City, and it is intended to cut many of the lodes at a depth of from 1,000 to 2,300 feet.

It is provided with double tracks and will drain and furnish transportation to the many mines along the line. The advantages of this system marks the furthest development in mining, doing away with the costly mode of hoisting and affording easy transportation of the product.

Many devices have been put on the market during the year for the saving of values, and the results in the aggregate have not been encouraging. It is fair to say that the stamp mills and smelters, which have stood the test for twenty-five years, will meet present requirements. Operators generally gave more attention to the development of ore bodies at greater depth. The extreme in Clear Creek County is 1,200 feet as compared to 2,300 feet in Gilpin County.

THE LEASING SYSTEM.

The leasing and royalty system is carried on quite extensively by miners of limited means. In the upper end of the county—Georgetown—blocks of ground are put up at auction and sold to the highest bidder at 40 per cent and upward. This is the silver, lead, and copper producing district.

In the lower end—Idaho Springs, the gold district—the same conditions prevail, but at a lower price, 20 per cent and upward ruling. About 2,100 men are engaged in mining in the county, the pay being $2.25 to $2.75 for laborers and miners, and $3 to $3.25 for engineers and timbermen. At least 40 per cent are working on leases.

The mines are practically dry and free from gases. There are 280 working mines and prospects and 200 shippers.

Fully 60 per cent of the mills are operated by power from the waters of Clear Creek. Transportation between mines and mills and railroad yards is by wagon. Roads are good during the summer months.

During the year there occurred 16 mine accidents, 5 of which were fatal.

DIVIDENDS.

Mines in Clear Creek County paid dividends during 1898 aggregating in value $400,000. The county numbers 5 sampling works, 3 located at Idaho Springs and 2 at Georgetown. The milling ores averaged about $10 per ton in the crude; the smelting product from $40 to $65. The lower end of the county scored an increase over the previous year while the Georgetown district fell off in silver and increased in gold. The output of lead has increased and this feature of mining will materially aid in keeping up the work on the silver lodes. It is the opinion of miners, generally, that a few deep mines will open up a second and better contact of ore.

MILLS.

The capacity of the following mills is far in excess of the output of the mines. With a daily capacity of over 1,500 tons, the irregular running of many of them, together with a marked suspension of operations during the winter months, fixes the amount of ore handled at about 800 tons.

SAMPLING WORKS.

Name.	Location.	Daily capacity.
		Tons.
Dewey Brothers	Georgetown	120
W. J. Chamberlain	do	100
Kilton Gold Reduction	Idaho Springs	100
State Ore Sampling Co	do	100
Denver Public Sampling Co	do	100

MILLS.

Name.	District.	Character.	Daily capacity.
			Tons.
Dewey Brothers	Georgetown	Concentration	50
Silver Mountain	Empire	do	20
Roberts	Idaho Springs	do	75
Smith	do	do	60
Silver Age	do	do	45
Mayflower	do	do	50
Lincoln	do	do	30
Donaldson	do	do	60
Standard	do	do	60
Cumberland	Yankee Hill	do	50
Lombard	do	do	35
Spect	Dumont	do	50
Alice	Yankee Hill	do	100
Wilkie	Idaho Springs	Amalgamation	20
Anderson	do	do	26
Mixell	do	do	25
Allen	do	do	20
Allan	Chicago Creek	do	20
Old Roberts	Idaho Springs	do	10
Mattie	Chicago Creek	do	20
Kittie Clyde	Idaho Springs	do	10
Osbourne	Fall River	do	10
Humboldt	Ute Creek	do	10
Edwards	Empire	Amalgamation and concentration.	30
Pioneer	do	do	30
Salisbury	Idaho Springs	do	40
Newton	do	do	40
Turner	do	do	26

The Atlantic, at Empire, was the only new mill built, although several received complete overhauling. The capacity was slightly increased in several mills by addition of new stamps and change from slow to rapid drop stamps.

Plans for the introduction of electric power to be furnished the various mines and mills are under way. One power plant is to be installed at Dumont and the other at Floyd Hill.

DOLORES COUNTY.

Dolores County has two mining districts, the Pioneer and Leone Cone. The town of Rico is practically the center of the Pioneer district, and most of the producing mines are in its immediate vicinity.

These mines are on Enterprise Hill in a sedimentary formation, producing two distinct vein systems intersecting at nearly right angles.

These veins are known locally as "producing" and "cross veins." The cross or secondary veins have no value as ore deposits, but have caused wherever intersecting the producing vein a lateral faulting in the producing vein from a few inches to many feet. A vertical system of faulting has also been encountered in this formation, which adds to the difficulty of locating ore bodies. The producing veins are numerous, occurring at irregular intervals, and, while narrow, are very high grade, containing a great variety of the true silver ores and carrying a large amount of metallic gold, frequently found as a network of threads permeating a mass of silver glance.

The apex of this system of veins is at a great depth below the surface, the fissures which occurred in the sandstone not extending into the line formation above, but stopping at a shale which forms a contact and generally appears the richest portion of the veins.

This whole system has been worked by tunnels and cross drifts, upraises have been made, the stoping on the ore shoots being carried as far up as the contact with the bituminous shale mentioned above.

The greatest height reached from the levels of the different tunnels to the contact is about 150 feet, and owing to the dip of the contact into the hill the tunnels will eventually cut through the shale contact into the limestone. The breast of the longest tunnel is now some 4,000 feet from its mouth, and here the contact is only some 30 feet above the tunnel level.

THE MINERAL ZONE.

The horizon of this contact indicates the mineral zone on nearly all sides of the town of Rico. Going north from Enterprise Hill the veins gradually become lower in grade and change from distinctly silver ores with small percentage of galena into what is called the "carbonate belt." Here the lead and iron contents have been oxidized and excellent smelting ore obtained.

A break in the lead carbonate deposits occurs at a point about two miles north of Enterprise Hill and a new character of ore appears in an iron and manganese oxide which often carries 700 or 800 ounces in silver with some gold. Following this manganese zone the ore again reverts back to iron and lead carbonates and oxides.

Some leasers have taken out the waste from old stopes of one of the prominent mines and screened the waste and then treated the screenings in an ordinary sluice box, obtaining a product which carries over 100 ounces of silver and considerable gold value to the ton.

ENTERPRISE HILL.

The mines of Enterprise Hill have produced very extensive dumps, which have been leased to parties who contemplate erecting a modern concentrating mill of 100 tons daily capacity, when the output from this camp will be very largely augmented.

Another of the older mining companies with large reserves of low grade ore will erect a concentrating mill of 60 tons capacity.

Durango is the smelting point for most of the ore mined, the lowest rate being on ore having a value of $20 to the ton, the freight rate averaging about 10 per cent of the value of the ore up to $6.50 a ton, the highest rate charged.

LEONE CONE DISTRICT.

This district has but one regularly producing property, located at the little town of Dunton. It is a gold property, with a 10-stamp mill, saving values on plates by amalgamation.

Navajo Basin, on the south side of Mount Wilson, has some very promising prospects.

EL PASO COUNTY.

CRIPPLE CREEK DISTRICT.

The Colorado-Philadelphia Reduction Company, at Colorado City, treated, by chlorination process, in 1898, 75,000 tons, all Cripple Creek ores, and they estimate an increased tonnage for 1899 of 10,000 tons. By June 1, 1899, this company will be operating a plant at Florence, Fremont County, under name of The National Gold Extraction Company, of 100 tons per day capacity. The total tonnage of Cripple Creek ores treated by the several chlorination and cyanide plants at Florence, Colorado City, and in the immediate vicinity of the mines for 1898 was 270,000 tons.

The only additional plant for milling Cripple Creek ores was erected by the Colorado Ore Reduction Company at Elkton, of 50,000 tons capacity. In 1898 this mill treated 17,000 tons, and expects to treat in 1899 35,000 tons.

The Economic Gold Extraction Company, organized by the Woods Investment Company, of Victor, for the exclusive treatment of ores mined by this company, is now building a very large plant in Arequa Gulch, of 600 tons daily capacity, and by July, 1899, will be treating, by cyanide and chlorination processes, some 300 tons per day.

Total tonnage shipped in 1898 from the district was 390,000 tons, 120,000 tons of which went to Pueblo and Denver smelters.

Freight rates on ores to smelters in 1898 were about the same per ton as 1897.

Treatment charges.—Treatment charges for low-grade Cripple Creek ores by the different mills are about uniform, either by cyanide or chlorination process, and whether treated in Cripple Creek district, Florence, or Colorado City, charges range from $6.50 to $13 per ton on ores carrying values of half ounce gold to 5 ounces and over.

Electric power is being largely employed. The Colorado Electric Power Company, at Canyon City, Fremont County, is now furnishing power to 37 plants for hoisting, pumping, operating air compressors, and lighting several prominent mines. Twenty-seven additional plants on mines are contracted for by the above company and electricity to set off blasts and light mines, as well as to operate electric drills, will be a new feature in 1899.

The La Bella Mill Water and Power Company, owned by the Florence and Cripple Creek Railroad Company, is erecting an immense steam plant at Goldfield for supplying electric power to mines throughout the district. This additional plant will be in full operation by June 1, 1899, employing 3,000 horsepower.

Leasing system.—Considerable leasing is in progress in the district, and probably 40 per cent of the tonnage of 1898 was under the leasing system. Royalties paid under this system are graded from 10 to 40 per cent; sometimes flat at 25 to 30 per cent, according to the prospects of the property and extent of development.

Size and values of the veins continue same in the granite flow as in the breccia country above. Main ore bodies are found on phonolite dikes, chimneys at vein intersections.

The mineral belt of Cripple Creek district has been extended to the northwest on Copper and Rhyolite mountains, which promise to add considerably to the tonnage of 1899.

The dividends paid out by companies alone in 1898 exceeded $2,500,000, and the output for 1899 will probably show an increase of 20 per cent over 1898.

GILPIN COUNTY.

Gilpin County, the smallest in the State, is the most prosperous and permanent, from a mining standpoint, of all the pioneer districts. It witnessed the first lode mining and the establishment of the first successfully operated smelting plant.

Gold was discovered in 1859 on the principal southern tributary of the North Fork of Clear Creek. The placer deposits have since been worked many times, producing millions of dollars. At this day a considerable number of men find remunerative employment in washing the creek sands during the summer months. While the placer beds were being originally worked facilities for treating the oxidized ores of the lode claims were canvassed. Active development followed the introduction of successfully operated stamp mills. With the supposed exhaustion of the oxidized or surface ores and the appearance of refractory sulphides this period of activity was followed by one of decline. The introduction of smelting works followed. As an immediate result, sulphide ores were rather sought than avoided. The stamp mills supplemented the amalgamating plates with concentrating tables, and the fine sulphides were thus saved.

The county lies on the eastern slope of the Front Range, and is in the main drained by the North Fork of Clear Creek and tributaries traversing Gregory, Chase, Eureka, Spring, Nevada, Russell, and Lake gulches. The geological structure is the granite-gneiss complex.

The veins are true fissures. They vary from 2 to 20 feet, and regular streaks of solid ore are not uncommon near one wall.

These usually carry higher values, and are separated and shipped as smelting ore, the lower grades making up the mill dirt. The ores are iron and copper pyrites, galena, and zinc blende. The ore chutes are usually of good length, and their persistency with depth has been demonstrated below 2,000 feet.

While the mineral production of the county has been from an area of less than 40 square miles, the entire county is practically mineral bearing. The producing territory is what is known as the "Sulphide Belt," the values being principally in gold, with a small percentage of copper and silver.

Gilpin County is divided into twenty-three mining districts, as follows: Bay State, Mountain House, Gregory, Central City, Enterprise, Quartz Valley, Eureka, Lake, Pleasant Valley, Illinois Central, Nevada, Vermilion, Twelve Mile, Wisconsin, Pine, Phœnix and Kansas, Union, Independent and Hawkeye, Silver Creek, Fairfield, Central, and South Boulder. While the older districts have proven more or less productive in the past, new camps have sprung up all over the county which promise well for the coming year.

The contract system in mining in quite common. Originally all work was let by the fathom (6 feet), but of late shaft and drift contracts are let by the foot (12 inches), and ore stoping by the fathom, i. e., 6 feet along the vein and 6 feet high.

In Gilpin County all mill ore is estimated by the cord, meaning 8 tons, while smelting ore is transported and sold on the ton basis of 2,000 pounds. This is probably the only camp in the State where the term "cord" is used.

On account of the small water supply available, few mining companies own mills, and the ores are subjected to the expense of transportation to and charges of custom mills for reduction in addition to that of mining, tramming to shaft, and hoisting.

The Colorado and Southern Railway passes through the principal camps and terminates at Central City, the county seat, affording easy access to the mines and mills along its line.

The records of the county show the location of 8,595 lode claims. There are of record 1,360 lode claims, 24 placer claims, and 58 mill sites, for which United States patents have been obtained.

All the shipments of smelting ore, concentrates, and tailings of the county are made from the Blackhawk station of the Colorado and Southern Railway. The products are consigned chiefly to the smelters at Denver and Pueblo.

During the year 3,600 carloads were shipped, carrying 60,512 tons. During the last four months of the year the railroad changed from

20-ton to 25-ton cars, and although the number of cars was less the total tonnage increased 400 tons. Both mill and smelting ores have been of higher grade.

A large number of old properties have been taken up under the leasing system. While there was a fair increase in the number of new plants, more money was spent in the way of new machinery, new shaft houses, and general development in the older districts than for some years.

There have been no noteworthy changes in the manner of ore treatment. Very little inconvenience is experienced from water or gases in Gilpin County mines. Continuous working expels the gas, and the water is lifted in ore buckets or by steam pumps. The many tunnels now being driven will afford a perfect drainage system.

The transportation facilities are of the best, nearly all mines being easily accessible to mills and railway yards by good wagon roads. The Gilpin Tramway Company, operating a 2-foot gauge railroad, with ore dump cars of 10 tons capacity, has added switches from its main line to several of the producing properties and now has a trackage of over 21 miles. The Colorado and Southern makes a uniform rate of $1 per ton to Denver.

The average number of men employed is 2,517, of which 1,800 find employment in the older districts lying adjacent to Central City and Blackhawk. Strikes and labor troubles are unknown. Wages of miners are $2.50 and $2.75 per day; of engineers and timbermen, $3 and $3.25 per day.

But little new terrritory was developed during the year. On the contrary, old claims seem to be in demand. A depth of 2,320 feet was reached in the California mine, dipping at an angle of 85 degrees.

Placer mining to a degree is carried on by the hydraulic and sluicing process. There were 34 mining accidents during the year, 11 fatal.

A company has been organized at Blackhawk to furnish electric power and light to the mines and mills of the county. The plant will be erected at Marshall, the great coal camp in Boulder County, where coal can be had at 50 cents per ton. An electric tramway will also be built between the two points.

Of the 350 mines and prospects worked, 220 proved shippers. The leasing system is operated extensively. Blocks of ground are worked under a royalty of from 15 to 30 per cent, mostly by local miners, and in many cases mines are made to pay under this system that were operated on company pay at a loss.

PRODUCTON OF 1898.

The grand total production in Gilpin County since the discovery of gold in 1859, including silver, copper, and lead, is $87,507,581, of which sum an allowance must be made of $6,000,000 for the last-named metals, those products not being separately accounted for in former years. Dividends to exceed $300,000 were paid during the year.

MILLS.

Blackhawk is the home of the mills, and while not all of the ore is treated there, it sooner or later reaches the mill city, as it is the shipping point for this county of all ores, whether smelting or milling, or the produce of milling in the shape of concentrates or tailings.

The following is a list of the mills in operation during the year:

Name.	Location.	Character.	Daily capacity.
			Tons.
State Ore Sampler	Blackhawk	Public sampler	100
Chamberlain Sampler	do	do	100
Penn	do	Amalgamating and concentrating	75
Iron City	do	Amalgamating and concentrating, 25 stamps.	50
Randolph	do	Amalgamating and concentrating, 50 stamps.	75
New York	do	Amalgamating and concentrating, 75 stamps.	115
Rocky Mountain	do	Rolls and Huntington	75
Gilpin County	do	Amalgamating and concentrating, 75 stamps.	75
Bobtail	do	do	115
Eagle	do	Amalgamating and concentrating, 35 stamps.	70
Hidden Treasure	do	Amalgamating and concentrating, 85 stamps.	115
Climax	do	Amalgamating and concentrating, 25 stamps.	37
Polar Star	do	Amalgamating and concentrating, 40 stamps.	60
Mead	do	do	60
Brooklyn	do	Concentration, 15 stamps	30
Vendome	Nevadaville	Amalgamating and concentrating, 30 stamps.	60
Kansas	do	Amalgamating and concentrating, 40 stamps.	60
Collier	Russell Gulch	Amalgamating and concentrating, 2 giant stamps.	8
Perigo	Perigo	Amalgamating and concentrating, 30 stamps.	100
Peterson	Lump Gulch	Amalgamating and concentrating, 15 stamps.	22
Linderman	do	Beam roasting furnace	50
Booster	Pine district	Amalgamating, 15 stamps	20
Elk Park	do	Concentrating, 10 stamps	20

HINSDALE COUNTY.

Hinsdale County did not add materially to its already developed properties during the year. The most important feature of the year in the Lake district was the commencement of two large drainage and development tunnels on Hotchkiss Mountain, with the contemplated erection of power plants and mills at the Falls below Lake San Cristobal. One of these will be a 40-ton concentrating mill.

Galena district, on Henson Creek, has witnessed the installation of two concentrating plants. The Ute and Ulay mine, the oldest producer in the county, output more ore than in any year of its history. This property has a large concentrating mill in connection with the mine.

The mining of copper ores in this district has received new impetus and work will be resumed on some of the old producers of that metal on Engineer Mountain.

In the Burrows Park district litigation has retarded the output. Several properties have, however, shipped quite steadily and a great deal of work has been done on old claims.

Carson has not added any new territory.

LA PLATA COUNTY.

In La Plata district development has not been carried on systematically, aside from two or three properties. The shipments have been chiefly small lots of high-grade ore from the tellurium belt.

The Omaha and Grant smelting works, at Durango, draws its supply of ore from all parts of these southern counties. At no other point in Colorado is the metallurgical problem quite so complicated as at this smelter. Large percentages of zinc, arsenic, copper, and antimony are continuously present, and a very large proportion of the ore supply is received at the smelter in the form of concentrates, which have to be specially handled. The principal advances in smelter work have been in the line of mechanical improvements. Any device which shortens time in the preparation of the ore for the furnaces or lessens labor at some point at once becomes a factor in the economical treatment of the ore. A number of such factors have been introduced, some very interesting.

SMELTING NOVELTIES.

Beginning at the roasting furnaces: As fast as possible the fire boxes are being altered from the old method of direct coal burning furnace to gas producers. The air is forced under the grates by a moderate pressure from a steam jet at each end of the fire box, the steam acting as an injector. A much poorer grade of coal can be used by this method of combustion. Instead of "slag roasting" the ores in these furnaces the finish is given as a sinter roast, requiring much less heat than in slagging the ore, and becomes an important saving in fuel as well as of labor in crushing the slagged ore. At the slag tap of the furnace another improvement has been introduced, made possible here because of the topography of the ground on which the smelter is built. At the foot of the slag dump flows the Las Animas River, water from which is forced by powerful pumps to a point just below the level of the working floor of the furnace. As the slag runs out from a large separating box, instead of into a slag pot, to be hauled away, it is allowed to fall through a hole in the iron floor into a launder, at the end of which is a pipe conveying a stream of water, under pressure from the pump above mentioned, which hits the stream of molten slag almost at right angles, and instantaneously slivers the slag into a granulated condition. The same stream which granulates the slag carries it by its force down the launder and deposits it in the Animas River, to be carried away. Experiments have shown that this granulated slag, owing to its extremely sharp edges, makes an admirable sand for mortar. The separating box referred to is very ingeniously arranged, so that it can be drawn away from the furnace by a cable attached to a hoisting engine, and when on the dump can be knocked down, the sides being movable; leaving the mass of cooled slag at a convenient point for further use, if needed.

Other improvements have been introduced in sampling the ores, the main feature of which is that the large sample of ore, previous to being finally cut down, is deposited automatically in an iron hopper which travels on a crane to the dividing table and is there divided automatically. The portion saved for further quartering is then in the same rapid manner divided again upon small dividers. The whole work is very rapid and accurate, and one man in the sampling room does the work of several men required formerly.

LEADVILLE DISTRICT.

Charges for treatment of Leadville sulphide ores have been gradually reduced during the past five years about 25 per cent, while the treatment charges on carbonate ores hold about the same as in 1897.

The several pumping plants are now handling from 6,000 to 6,500 gallons per minute, fully one-half coming from what is known as the down-town mines, which have been idle some three years. By May, 1899, these mines will have been drained and mining resumed. This down-town drainage will be felt in sections of nearly 4 miles in length.

The official tonnage shipments of Leadville district in 1898 were as follows:

	Tons.
Sulphide ores	206,555
Oxidized iron ores	150,980
Carbonate ores	82,650
Siliceous ores	60,170
Manganese ores	17,637
Total for 1898	517,992
Total for 1897	413,552
Increase	104,440

The flow of water in 1898, as compared with 1897, is about the same.

Projected drainage tunnel.—A drainage tunnel is projected, starting near Malta Station, on the Denver and Rio Grande Railway, some 5½ miles west of the center of the productive portion of the camp, which will reach a depth of several hundred feet below most of the mines, excepting the Mahala and Rialto claims and workings.

The Arkansas Valley smelter, located at Leadville, has a daily capacity of 1,000 tons, and is the largest in Colorado. About the deepest workings reached is 1,200 feet, in Mahala and Rialto ground. The wages paid is $3 for ten hours, day work, and same for nine hours, night work. No particular change in trend of ore chutes was noted in 1898.

Entry of new capital in 1899 promises to be very largely increased over any time during the past five years. Dividends paid for working Leadville mines in 1898, $1,655,000.

MINERAL COUNTY.

The center of the mining activity of Mineral County lies in the peaks which surround the town of Creede. The town itself lies at the junction of three very precipitous mountains, separated by the narrow gulch formed by Willow Creek and its two branches. These mountains are extremely rugged and seem to be great masses of trachyte, which in Bachelor and Mammoth mountains—the two exterior mountains of the group—rise almost perpendicularly for a height of about 1,000 feet above the bed of the creek. The remarkable feature of this district lies in the fact that the three great eruptive mountain peaks have each, apparently, but one great vein, which seems to follow the longitudinal course of each mountain.

The phenomenal vein of the district begins at the extreme south end of Bachelor Mountain and has been worked in consecutive locations for about 3 miles, while the vein has been probably proven for nearly 3 miles farther. This great ore body has shown wonderful strength of vein and persistency. The width ranges from 6 to 30 feet between its walls, and for the entire distance the foot wall has been found intact. The hanging wall seems to have suffered more or less from disintegration, due probably to the effect of leaching of the values from that side, resulting in an enriching of the vein.

The values of this ore body are silver, gold, and lead. In the upper workings, or oxidized zone of the vein, at some points, very high-grade silver values have been extracted, and at the time of writing a pocket of native silver has been encountered in the southern end of the vein at a depth of 900 feet which equals any discovered in the upper levels. An additional interest is associated with this discovery from the fact that at this depth the ore body is below the water level and in what is known as the sulphide zone.

SILVER DISAPPEARS AT DEPTH.

Another very interesting feature is that as depth is attained, especially as we approach the northern series of claims, the silver values disappear, being replaced by gold. In one group the silver has fallen as low as a fraction of an ounce to the ton, while the gold, which only reached a value of about $6 in the upper workings, has an added value of $16 to the ton, and from an adjoining claim one shipment gave smelter returns of $100 to the ton in gold.

LEAD.

The yield of lead is a great factor in the successful working of these mines, and the gradual increase in its market price has made possible the profitable handling of large blocks of the low-grade reserves. Several shafts on this vein have reached a depth of 1,200 feet and one 1,400 feet. Levels running from these shafts have opened up immense reserves of low-grade ore.

THE WATER PROBLEM.

When depth was attained, the problem of economically handling the large volume of water encountered became most serious. In 1896 and 1897, because of this and the break in the price of silver, a number of the properties found it advisable to suspend operations.

The problem of unwatering these mines seems now to be in a fair way of solution by running a tunnel on the vein, cutting at its deepest point, nearly 1,800 feet below the surface. At a point some 1,400 feet from the mouth of the Nelson tunnel a new tunnel was started at nearly right angles, and cutting the vein at its depth, 1,800 feet below the surface. Its continuation shows the breast of the tunnel, 6,200 feet from the mouth. As the vein is more or less open, the water finds its way very readily to the tunnel level, through which a waterway is left.

A very large tonnage is shipped from the town of Creede, one property alone furnishing over 200 tons of ore daily.

CAMPBELL MOUNTAIN.

Campbell Mountain, the central peak, also has a very strong vein, which has not been exploited as thoroughly as that of Bachelor. In addition to gold, silver, and lead values, the vein on Campbell has carried a large amount of zinc blende. In one of its properties the zinc has run as high as 70 per cent, and averages 27 per cent. All smelters discriminate against zinc ore, as it is very detrimental in smelting lead ores. This fact has militated against the development of the Campbell Mountain vein.

Some two years ago a concentrating mill tested the possibility of separating the zinc blende from the galena. The lead was produced very free from zinc, and the comparatively worthless zinc was equally free from an excess of lead. A successful effort to market the zinc product was made, and all of this class of ore has been shipped to the

Eastern markets during the years 1897 and 1898, making the first regular shipments of zinc blende out of the State of Colorado. An inspection of the ore shows that the mechanical structure of the zinc blende and galena has a great deal to do with the very excellent separation. The individual crystals are very distinct, and frequently the crystals of blende are large. In addition to this the gangue associated is a comparatively soft talc, which greatly aids in the separation. This ore, which was concentrated originally for its lead value, now yields a larger revenue from the zinc shipped than from the lead.

MAMMOTH MOUNTAIN.

Mammoth Mountain has its vein, but only desultory work has been done upon it, and it will probably require deep mining to find the values in place. A tunnel has been started.

MONTROSE COUNTY.

During the past year, at a point 75 miles from the station of Placerville, on the Rio Grande Southern Railroad, and which is the nearest shipping point, a very remarkable argentiferous copper vein has been opened. The discovery consists of two parallel veins, and is located in the La Sal Creek, at a point some 12 miles east of the Utah State line and 8 miles up from the junction of the La Sal with the Dolores River. These veins run in a northeasterly direction, the apex of each being exposed from the bottom of the gorge, some 200 feet deep, through which flows the La Sal, and can be traced by their outcrop for a long distance on the surface until lost in the overlying strata, which has not been cut away by erosion.

The average width of one of these veins is 6 feet, while the other is nearly 14 feet. The formation is sedimentary and the veins are fissures in the sandstone formation, the fissures being nearly vertical, with smooth and well-defined walls, in which the stratification of the sandstone seems to be obliterated for some distance on each side of the veins.

Considerable work has been done on these properties. Early in the year a shaft, known as the Angel, was sunk 100 feet in ore from the surface and was only stopped because of the excessive flow of water. A tunnel was then started some 60 feet above the creek level, and is now in 240 feet, the entire distance being in ore.

COPPER AND SILVER VALUES.

Smelter returns on carload lots of this ore show the general average of copper contents nearly 30 per cent, and 80 ounces silver to the ton. This is from an average of the pay streak, while portions of the vein formerly considered worthless are now found to be valuable ore, carrying from 7 to 15 per cent of copper and as high as 120 ounces of silver. That portion of the pay streak lying next to the wall produces some phenomenal ore. Masses of copper glance running as high as 80 per cent copper, and carrying silver values as high as several hundred ounces to the ton, seem to be continuous. At the present depth the ore is partially oxidized, and produces fine specimens of the mineral "bornite" in solid masses, weighing as high as 150 pounds in single pieces. The La Sal Copper Company, which is mining these veins, has put on a large force of teams and is making regular shipments from the Placerville station. It is the intention of this company to erect a 50-ton matting furnace to handle the lower grades, which exist in large quantity and carry from 7 to 15 per cent of copper and from 70 to 150 ounces of silver to the ton.

The unusually high grade of copper in these ores, with high silver values, has caused scores of prospectors to flock into this district.

URANIC OXIDES.

A most interesting report is that several tons of the rather rare minerals, containing uranic oxides in paying quantities, were shipped from this district during the latter part of the year. It is not uncommon to see fine specimens in the possession of prospectors, who will not divulge the exact locality of their discoveries, but claim that they are in the vicinity of the La Sal Mountains.

In the central-western section of the county many efforts have been made to collect gold values, which exist in the sands of the San Miguel River and the higher mesas forming its banks, once the bed of this stream. Because of the extremely flaky condition of the metal, or fineness of the particles, no successful efforts have been made on a large scale, although on the upper waters much money has been expended in ditches and flumes.

OURAY COUNTY.

The county of Ouray is divided into five mining districts, known as the Red Mountain, Uncompahgre, Sneffles, Camp Paquin, and Sentinel. Red Mountain district has been gradually producing less, and 1898 has probably shown the smallest production in its history. This is because the great mines here are nearly all owned by foreign syndicates, who prefer to allow the immense ore reserves to lie idle until the price of silver materially advances.

Some leasing has been done on the dumps of the Guston, Yankee Girl, Silver Bell, and Genessee-Vanderbilt lodes with varying success, and early in the year the Congress mine was operated, suspending July 1. The great altitude, long winters, and heavy snowfalls make transportation very expensive. Similar conditions obtain in the Uncompahgre district, its largest mines being silver producers.

MOUNT SNEFFLES DISTRICT.

The Mount Sneffles, of all districts, has been most actively worked during the year, producing fully two-thirds. Its greatest producer is the Virginius, a steady shipper for twenty-two years. The mine is worked through the Revenue tunnel, owned by this company. It cuts the vein 2 miles from the mouth, and at 1,400 feet.

The vein is persistent throughout, and while not always very high in grade, is of a good concentrating quality. A very good gold value is said to be associated with the silver of the Virginius ore. Electricity is the motive power in mine, mill, and tunnel, generated at three power houses. Two electric engines convey the ore cars through the long tunnel and transport the miners to and from their work, while an electric hoisting plant is used at the deep shaft.

The Camp Bird group.—The phenomenal property of this district is the now famous Camp Bird group, owned and operated by Thomas F. Walsh. This property, less than eighteen months ago simply a prospect, developed into a veritable bonanza property, the values of the ore being almost entirely gold, often very rich, and in such case sent directly to the smelter.

The vein of the Camp Bird mine, the principal one in the group of thirty-three claims, is favorably located for economical working, outcropping at the head of Imogene Basin, upon the main divide between Ouray and San Miguel counties, in such a manner that it can be operated through adit levels from the surface. Two of these levels have been driven 2,500 feet each, and a third is started. The vein is continuous, showing only at very short intervals any tendency toward leanness, and continuously carrying its high-grade pay streaks.

The ore seems to be principally a sharply crystallized quartz in which the values are in the form of free gold, which amalgamates readily. The erection of the mill, and especially the tramway connecting the mines and mill, was a marvel of speed, local conditions considered.

The mill site is a beautiful one at the junction of Imogene and Sneffles Creek, 5½ miles above the town of Ouray. It has been named Potosi, after the mountain. The mill is modern in every sense, and has a capacity of 80 tons daily, the motive power being electricity derived from the Ames power station, 17 miles distant. The mill has, as its initial crushing machinery, 20 stamps, 850 pounds each, dropping 90 times a minute, with a fall of from 8 to 9 inches. No attempt is made to amalgamate in the battery, but each battery is supplied with an amalgamated copper plate 17 feet long, with copper traps at the end of each plate to catch any escaping mercury or amalgam. From the plates the pulp passes through long launders provided with amalgamated copper plates to arrest any values escaping the plates and traps. This pulp is sized, the slimes being sent over 5 Frue vanners, and the coarser material elevated to Huntington mills, where the sand is reground and again passed over plates. These tailings are treated on 5 other vanners the same as the original slimes. Ninety-two per cent is claimed to be saved. The mill is connected with the mines by a wire tramway fully 2 miles in length, completed at the beginning of winter in just forty-nine days. A large cross compound compressor of the Rand type, driven by electricity, furnished air for the power drills. Eighty men are employed at the mine and 40 more at the mill and other work. It is the intention during 1899 to double the present output, and large additions will be made to the mill. Several other properties in the Mount Sneffles district have proved themselves in the list of gold producers. The leasing system is becoming popular in this section of the county.

CAMP PAQUIN DISTRICT.

Camp Paquin district embraces a large number of producing properties, some of very high grade silver ore, carrying values which net as high as $300 to the ton; but the most active work in this district is probably in the gold deposits which exist in the quartzite strata of the great sedimentary formation close to the town of Ouray. These mines maintain a constant output of excellent ore.

A number of these claims are worked through a tunnel of 2,000 feet, run to cross cut the ore bodies supposed to exist in the contact.

A lower quartzite formation has been carefully prospected and values found as well as in the upper strata, but in the lower the arrangement of ore deposit seems to be very different, apparently being in fissures or breaks through the sedimentary rocks and which do not seem to hold their values to the same extent with the depth that they do in the upper portions of the same veins or deposits.

The Sentinel district has not produced any ore regularly during the past year.

PITKIN COUNTY.

ASPEN DISTRICT.

This mineral district is the only one in Colorado producing strictly silver ores, and the larger tonnage production being low-grade ores, it requires the closest and most intelligent management to insure profit.

Large mining operations are carried on here to day, notwithstanding the reduced value of silver, utilizing water power for milling with probably the most complete system of ore concentration in the State.

The blue lime ores of Aspen Mountain, being the more desirable for smelters, are largely shipped without concentration. Being very low grade in silver (from 6 to 10 ounces), on account of fluxing properties, they are generally treated by the smelters at much less cost to the mine owners, while the Smuggler Mountain ores, carrying more silica and sulphides, are mostly concentrated before shipment.

But these concentrates are subjected to a treatment charge of two and three times more than the Aspen Mountain blue lime ores.

Perfect concentration.—The system of concentration in this camp is about as perfect as possible. The Smuggler, or Hallett table, in use at the Smuggler mill for slimes and fine ore, is doing remarkably good work. About 10 per cent of the tonnage shipments are concentrates. Total tonnage of the camp for 1898 was 165,000 tons. Dividends paid in 1898 do not exceed $250,000. No reduction in treatment charges on Aspen ores in 1898 was gained. All pumping plants use steam power, about 3,000 gallons per minute being pumped. Royalties range from 10 to 70 per cent. About 60 per cent of the labor of the camp is by leases. No marked change in trend of ore chutes in 1898, and no entry of new capital is looked for unless the price of silver advances. Ore bodies do not appear to be getting richer with greater depth.

Tunnel transportation charges in ore range from 75 cents to $1.35 per ton and on waste 20 to 45 cents per ton. Sampling charges, 50 cents to $1 per ton.

The Roaring Fork Electric Power Company is furnishing electric power for hoisting and air compressors to 14 mines, and this power is being adapted more and more, both on account of economy and convenience. The deepest workings are 1,000 feet under the city of Aspen and some 2,000 feet below the apex or face of the mountain.

Milling a new feature.—Milling is the new feature of the camp. The mills are keeping the town alive by enabling the mines to employ workmen on ore bodies that heretofore were too low grade to mine, pay freight and treatment. Between the Argentum Juniata mine and the Mollie Gibson shaft is an electric railroad, 1,000 feet below the surface, that handles the ores from the A. J. mine to the Mollie Gibson shaft, on opposite side of Roaring Fork Creek, and it is then hoisted and delivered to their mill. About one-third of the hoisting in Aspen camp is done by electric power. Wages range from $2.50 to $3 per day of eight hours.

SAN JUAN COUNTY.

San Juan County's improvement during the latter portion of the year was largely due to the increased values of the lead ores mined, chiefly because of the different companies operating on an extensive scale, rather than the aggregation of small shipments from individual miners or leasers.

The county is divided into six mining districts, of which Las Animas and Eureka districts produced by far the greater proportion of ore shipped. The county does not have reduction works of any character, except one amalgamation mill for free gold ores. The ores are almost exclusively smelting ores. The pyritic smelter at Silverton closed down during the latter part of 1897, owing to the scarcity of iron sulphide ores, it is claimed.

LAS ANIMAS DISTRICT.

This district, located north and east of the town of Silverton, has really but five large producing mines, and these properties easily furnish over one-half of the county's tonnage. Their product is almost wholly in the form of concentrates, their output of crude ore being not less than 300 tons a day. Several mills are in constant operation.

EUREKA DISTRICT.

This district has been a large producer for years, its heavy lead ores, in addition to their silver contents, carrying a fair amount of gold values, which, in several instances, is the principal value of the ore mined. Two mills are operated the entire year. About two-fifths of the product of the county is produced from Eureka district; but owing to the very deep snows and great danger from snow slides there is but one of the properties which is shipping out its product, and this mine will keep eight large freight sleighs running all winter carrying its concentrates to the railroad at Silverton, 8 miles from their mill.

ICE LAKE DISTRICT.

The production of this district has been limited to the rather small output of two mines operated during the summer season. One of these properties has a mill, but closes it down as soon as the snow begins. The other property produces a high grade of lead and good silver values. There is an appreciable amount of gold in these ores. Red Mountain, Uncompahgre, and Cascade, the other districts in this county, have had some prospecting, but the output has been small.

REFRACTORY ORES.

The ores of San Juan County are very refractory and difficult to treat economically. They all require roasting, containing arsenic, antimony, and zinc, frequently in large quantities. Recently ores containing tungstic acid have been encountered, with quite a large percentage of that metal. The veins are usually very strong and often of great width. The majority of ores have been too low grade to bear transportation from mines to railroad, with freight and smelter charges added. Because of this and the long and severe winters small mining ventures, profitable in other parts of the State, are growing yearly less here. Those properties equipped for extensive work have clearly proved it possible to combat the elements, conquer difficulties of objectionable metals in the ores by proper systems of concentration, and score a profit.

The very heavy and dangerous snows in this region have been practically disarmed by remarkable systems of aerial tramways connecting mine and mill and, in some cases, mill and railroad, for distances of 2 and 3 miles. No section of the State enjoys such a perfect system of long tramways as does San Juan County. The cost of hauling ores has thus been greatly reduced.

A MODEL MINERS' HOME.

The comfort of the miners has been most carefully studied. The boarding house at the Silver Lake properties, largest in the district, is a 5-storied structure, with ground floor space of 80 by 90 feet, and the 4 upper stories, 40 by 90 feet, lighted throughout by electricity, heated by steam, provided with hot and cold water, bath, laundry, and other modern conveniences. Fire hose lines run through the house, and 2 tanks, of 5,000 gallons capacity each, are located on the roof. The dining room is 40 by 90 feet and seats 250 persons. In the large and well-equipped kitchen all cooking, save meat, is done by steam. Dishwashing machines and drying tables prevail. The garbage is burned daily.

Just off from the model merchandise store is Arastra post-office, a money-order office accommodating over 500 men employed in Silver Lake Basin.

The machine shop is 40 by 130 feet, equipped with machines for altering, manufacturing, and repairing nearly everything used. Twenty other large buildings are well equipped for their purposes.

The mill connected with this mine is the largest in capacity in San Juan County, handling 200 tons of crude ore per day, and is most complete. Nearly every department of work is driven by electric motors, the current being generated by water power on the Animas River and conveyed 15,000 feet to the mine and mill. With every electric motor a supplemental steam engine is found ready to take its place in emergency. The Seemans-Halske electric-power drill is to be introduced early in 1899. The depth attained on this property is probably the greatest in the country—about one thousand feet. A number of tunnel projects are in progress of development in Las Animas and Eureka districts, the most extensive being the Unity tunnel, to be driven in from the Animas River to cut the Silver Lake mines' workings, at a distance of nearly three miles from the tunnel's mouth.

During 1898 several concentration mills have been added to the county.

SAN MIGUEL COUNTY.

The county of San Miguel is divided into four mining districts, known as Upper San Miguel, Lower San Miguel, Iron Springs, and Mount Wilson. Of these the Upper San Miguel district, in which the town of Telluride, the county seat, is located, contains the greatest amount of development work and the largest number of producing mines. Possibly nowhere in the San Juan country, as all of these southern counties of Colorado are known, is there collected within the same limited area as many extensively developed mines as are included in the territory embraced at the junction of the three counties of San Miguel, Ouray, and San Juan.

The Upper San Miguel district has been subdivided into sections, known locally as Marshall Basin, Savage Basin, Bridal Veil Basin, Bear Creek, and Turkey Creek Basin. These basins are located near to or above the line of timber, and are natural parks nestling in the great gorges dividing the giant peaks which tower for thousands of feet above the town of Telluride.

MARSHALL BASIN.

Marshall Basin is perhaps the best known of these different localities from the famous Smuggler-Union vein, which has been proven continuous for at least 3 miles, with a succession of claims—all of which are or have been producing properties. This vein does not appear to be of vast dimensions compared with some of the great veins in other parts of the State, but its uniform width, the permanency of its ore bodies, and, at times, the surprising richness of its values of gold and silver have marked it as perhaps the best illustration of a persistent ore body in the State.

The amount of development work done on it is simply immense. On the properties comprised under the head of the Smuggler-Union mines, of which there are 7 patented claims, lying directly on this great vein, the length of tunnel drifts, winzes, and shafts comprises at least 28 miles. The other claims on the vein have been largely developed. A number of other producing properties lie in this basin, the veins either paralleling or crossing the great Smuggler-Union vein.

There are 3 mills in operation connected with the mines of this basin. Formerly, the mills were used as amalgamation mills, but for several years no attempt has been made to amalgamate the ores of Marshall Basin, the mills being used entirely for concentration of the lower grades of ore.

The ore is conveyed by wire tramways for a distance of 1 mile from the sorting house on the Smuggler-Union to the mill, which has a daily capacity of 200 tons. The concentration is performed on belt machines of the Vanner type. After leaving the mill the tailings are conveyed to a building where they are treated on canvas tables, known locally as the "Kirby" process, but involving a principle which has long been employed.

The ores mined in this basin contain the following minerals: Pyrite, chalcopyrite, galenite, sphalerite, and the arsenical silver minerals.

Hon. John A. Porter, president of the Smuggler-Union Company, states that "one remarkable feature is the constant increase of gold values toward the south throughout the entire workings and the corresponding decrease in silver value in the same direction. Where the vein crosses the divide, at the extreme north end of the property, the gold value is hardly one-quarter that of the silver. The transition of silver to gold is almost constant, until a mile south the vein practically becomes a gold lode."

SAVAGE BASIN.

Savage Basin, lying just beyond Marshall Basin, contains several mines of great reputation as gold producers, and at the same time others are producing silver-lead ores in good quantity. These mines are in several instances provided with mills for amalgamation and concentration in the case of gold ores and for concentration in the silver-lead properties.

The largest of these properties has been in active operation for about five years, and owing to its location has heretofore been worked through a tunnel from its mill, a distance of nearly 3,000 feet. During the past year a great deal of development has been accomplished, and it is estimated that the mine has several years of work for its mill in the ground already blocked out. The mill has a capacity of 160 tons every twenty-four hours, and is in constant operation. The power employed is electricity, which is conveyed from the generating station of the Telluride Power Transmission Company, located 13 miles distant from the mine.

The ore, being of a soft character and not suited for the ordinary stamp mill, is, after being crushed and passed through rolls, fed into eight Huntington mills, the values being saved by amalgamation. From the copper plates the pulp passes over twenty-four frue vanners, very satisfactory results being obtained. Another of the steady producers in this basin has a very high-grade gold and silver ore, and concentrates its lower grades, having a 10-stamp mill operated by electricity.

BRIDAL VEIL DISTRICT.

The Bridal Veil district, while long known as in the gold belt of this section, has been comparatively neglected until this year.

This section can almost be considered new territory, and, although no ore has been shipped from the basin, yet a mill has been built consisting of 10 stamps, making three mills in this section during the past season, and the probabilities are that the coming season will see a very material addition to the gold output of the county from these claims.

BEAR CREEK.

Bear Creek lies directly west of Bridal Veil Basin, with many of the large veins of that district crossing through the high mountains that divide the two. It is, in fact, in the very center of the gold-bearing district that starts in the southern boundary of San Miguel County from east to west. Very many large veins have been worked in a desultory manner for years, and mines which have proven producing properties have lain strangely idle. One of the largest mills in the county, located here, has until recently been shut down, but is now leasing forty of its stamps to a contiguous producing property. This property has a vein carrying from 4 to 6 feet of quartz, very easy to mine, and which returns an average of $15 dollars in gold to the ton. The ore supply is large, and reserves of great size are blocked out. The mine is connected with the mill by a tramway. The workings of this mine are lighted and electric power furnished for mine and mill, the water from Bear Creek furnishing the initial power.

Another property in this basin, which has a large vein of refractory ore, has erected a concentration mill of 40 tons daily capacity, but so arranged that its output can easily be doubled.

A 10-stamp concentrating mill of 20 tons capacity has been erected on another property, and a tramway from the mine nearly 3,000 feet long.

TURKEY CREEK BASIN.

Turkey Creek Basin has produced gold ore for a number of years. It boasts a very strong free-milling vein, which has been worked more or less extensively for the past eighteen years. The principal claim on this great vein is connected with its mill by a surface tramway. The mill is provided with 40 stamps and plates for amalgamating, the tailings being treated on concentrating machinery. Both at the mine and the mill the machinery is run by electricity. During the past year a new and very complete mill has been erected in this basin of 200 tons daily capacity. The crushing capacity of the mill is 300 tons per diem, and roasting furnaces of over 200 tons daily capacity are also in place. The ore passes into a 12 by 22 crusher, then through a dryer of same capacity, thence through high-speed rolls, where it is further crushed and passed through a one-eighth inch screen. It is then sent through Bruckner roasters and again passed through rolls, being reduced to a fineness of 20 mesh, passing again through a set of finishing rolls, leaving them at a fineness of 40 mesh, when it is fed into Huntington mills and then passes over amalgamated plates.

IRON SPRINGS DISTRICT.

The Iron Springs district lies in the southern part of the county of San Miguel, and includes the large number of mines and mills which have the town of Ophir as their distributing center. The mines of this section are principally gold producing, although some very rich argentiferous galena veins are worked. Some 6-stamp mills are in operation, all provided with concentrating machinery. Some are connected directly with the mines by wire tramways. The majority of these mills employ water or steam as motive power.

MOUNT WILSON DISTRICT.

The Mount Wilson district lies west of the Iron Springs district, on the southern line, dividing Dolores and San Miguel counties. A number of very good prospects are being developed. The most important producing property is located on the north slope of Mount Wilson, about 10 miles due west of the town of Telluride, and is one of the highest located mines in Colorado. Its well-defined vein runs through the center of a dioritic dike. The values are often wonderfully rich in gold, with very little silver. This property has been worked continuously for ten years, and is opened by nine levels, the lowest of which is at an altitude of over 13,000 feet. The entire ore body is about 4 feet wide, having a value between walls of from $25 to $30 to the ton. The mill is over a mile from the mine, connected by a wire-rope tramway.

LOWER SAN MIGUEL.

The Lower San Miguel district is north of Telluride. Very little work was done during the year. Its principal town is a camp called Saw Pit. The mines are more of the character of deposits in the lime formation, prominent in this section. As a rule, the ores are low in grade and values chiefly in silver and lead. Some desultory placer mining has been carried on during the past season on the San Miguel River.

The mining industry in San Miguel County has, from the general character of its ores and its great distance from smelting centers in the past, necessitated methods of home treatment. As a result, perhaps in no county in the State have mills been so readily built or so effectively worked. The value of concentration seems to be thoroughly understood here, and all mills are equipped with some one of the many varieties of concentrating devices. The usual method is to take the pulp from the stamps or other crushing machinery after sizing, and treat directly on some form of belt machine or table.

KIRBY MILLS.

One of the very interesting arrangements is known as the Kirby mills. The object is to save, to as great an extent as possible, the values escaping from the mill in the form of slimes, or particles so fine that they are not caught by the concentrating machines. The Kirby mill was introduced into Colorado a few years ago from California, although its fundamental idea, long employed here, consists of a series of canvas-covered tables, stationary, and so inclined that the pulp conveyed over them flows in a thin and gentle current over the canvas floor. A double launder is placed at the foot of the table, to the center partition of which is attached a wing, which can rest with one edge on the lower end of the table and over which the pulp flows as waste after depositing its values. At intervals the pulp is turned off from the table, after which the wing is raised and the deposited values washed off by means of clear water into the now open launder. From here the partially concentrated slimes are carried to settling boxes, thence to a specially adapted belt machine. The essential thing is claimed to be the careful sizing of the pulp before introducing it on these tables.

ELECTRIC POWER.

Probably no section has so much machinery moved by electricity as do the mines and mills of San Miguel County. The Telluride Power Transmission Company has its generating station at Ames, utilizing the confluence of the Lake and Howard's forks of the San Miguel River, which forms the South Fork and is about 10 miles from Telluride. This company also controls the water from Trout Lake, some 2½ miles from the generating station, and obtains a fall of 1,500 feet in that distance. The fall from the waters of the South Fork is about 900 feet. The tremendous pressure obtained is used on 2 Pelton water wheels, which drive a line shaft actuating 2 generators. These are massive machines, standing 11 feet high and each weighing 64,000 pounds. Their combined capacity is estimated at 1,500 horsepower. The greatest distance to which the current is carried is to the Camp Bird mill and mine, in Ouray County, 17 miles, where 100 horsepower is used.

In Savage Basin the Tom Boy mine uses 200 incandescent lamps and 170 horsepower for its mill, from this source. The Japan mine, in the same basin, uses a 50-horsepower motor for its mill and 20 horsepower for its mine. Near by, the Columbia Menona uses two 60 horsepower motors in its mill; the Valley View mill 20 horsepower. Crossing to Bear Creek, there is the 120-stamp mill of the San Miguel Consolidated Company using 80 horsepower; but the Nellie mine and mill are operated and lighted by their own power generator at their station on Bear Creek. The Euclid Avenue mill is furnished by power from the Transmission Company. This is 10 miles from the plant. In the Turkey Creek Basin the Bessie mine and mill use 100 horsepower, and the Gold King mine and mill are lighted and worked by a 40-horsepower motor. At the Liberty Bell mill, just above Telluride, a 50-horsepower motor is used, while in the town of Telluride several small shops use the power in addition to 15 arc lights and about 1,500 incandescent lamps for illuminating the town.

TUNNELS.

Several tunnel enterprises have been pushed, notably the Meldrum tunnel, which will cut through the main range from Pandora, some two miles from Telluride to Ironton, in Ouray County. This tunnel will cut the great veins of Marshall and Savage basins in San Miguel County and the great producing properties near Ironton, in Ouray County, with a probability of cutting the famous Camp Bird gold vein in the latter county. The bore will be about 4¼ miles in length by 12 feet in height and 12 feet in breadth, and will cost between $4,000,000 and $5,000,000. It is the intention to utilize this tunnel for railroad purposes as well as for mining and drainage.

PRODUCTION OF COLORADO FOR 1898, BY COUNTIES.

County.	Value of gold.	Coinage value of silver.	Total value of gold and silver.	Value of lead.	Value of copper.	Total value.
Arapahoe	$683	$8	$691	....	....	$691
Boulder	581,300	117,304	698,604	$325	$2,537	701,466
Clear Creek	605,528	2,024,024	2,629,552	212,057	35,931	2,877,540
Chaffee	227,494	107,000	334,494	91,537	12,725	438,756
Conejos	18,339	38,413	56,752	....	....	56,752
Costilla	5,513	45	5,558	....	....	5,558
Custer	709	31,372	32,081	36,174	165	68,420
Delta	576	20	596	....	....	596
Dolores	88,281	597,717	685,998	24,915	16,938	727,851
Eagle	30,563	91,310	121,873	67,187	8,046	197,106
El Paso	13,507,244	87,972	13,595,216	37	18	13,595,271
Fremont	8,675	1,832	10,507	76	....	10,583
Gilpin	1,984,140	394,347	2,378,487	44,138	71,725	2,494,350
Grand	808	13	821	....	....	821
Gunnison	80,982	197,111	278,093	72,450	13,473	364,016
Hinsdale	51,270	240,529	291,799	356,651	11,765	660,215
Jefferson	1,823	131	1,954	....	....	1,954
Lake	2,051,835	8,782,745	10,834,580	1,295,412	645,111	12,775,103
Larimer	11,149	75	11,224	....	2,770	13,994
La Plata	30,377	5,608	35,985	....	287	36,272
Montrose	2,712	6,824	9,536	....	3,920	13,456
Mineral	46.370	5,388,657	5,435,027	197,878	1,659	5,634,564
Montezuma	8,265	1,124	9,389	305	....	9,694
Ouray	852,556	1,830,855	2,683,411	101,602	115,747	2,900,760
Park	159,485	249,565	409,050	70,869	2,371	482.290
Pitkin	70,967	5,133,453	5,204,420	577,102	510	5,782,032
Rio Grande	3,715	2,020	5,735	87	1,103	6,925
Routt	12,757	2,803	15,560	562	....	16,122
Saguache	19,666	3,377	23,043	4,803	2,449	30,295
San Juan	1,132,581	1,352,561	2,485,142	531,968	254,878	3,271,988
San Miguel	1,572,660	2,746,522	4,319,182	243,115	40,851	4,603,148
Summit	343,796	536,493	880,289	177,417	1,107	1,058,813
County unknown	....	....	....	114,464	167,050	281,514
Total	23,512,819	29,971,830	53,484,649	4,221,131	1,413,136	59,118,916

STATEMENT OF BULLION OPERATED ON AT THE UNITED STATES MINT AT DENVER, COLO., DURING THE CALENDAR YEAR 1898.

County.	Gold	Silver.	Total.
COLORADO.			
Arapahoe	$579.86	$1.68	$581.54
Boulder	99,710.45	256.05	99,966.50
Clear Creek	71,133.36	524.99	71,658.35
Chaffee	46,088.19	262.02	46,350.21
Conejos	5,989.42	86.55	6,075.97
Costilla	985.67	8.75	994.42
Delta	389.66	6.03	395.69
El Paso	5,574,733.16	5,260.70	5,579,993.86
Eagle	2,410.11	13.44	2,423.55
Fremont	382.83	.78	383.61
Gilpin	739,584.50	4,685.72	744,270.22
Gunnison	137.53	.65	138.18
Grand	188.45	.28	188.73
Jefferson	117.24	.69	117.93
Lake	10,765.83	75.37	10,841.20
La Plata	2,741.05	31.49	2,772.54
Larimer	10,455.69	17.34	10,473.03
Montezuma	7,841.19	16.03	7,857.22
Ouray	478,385.01	4,418.07	482,803.08
Park	7,775.47	39.71	7,815.18
Pitkin	19,206.02	106.54	19,312.56
Rio Grande	897.27	12.44	909.71
Routt	11,728.42	51.45	11,779.87
Sagauche	15,845.78	226.99	16,072.77
San Juan	1,449.75	6.52	1,456.27
San Miguel	250,276.36	3,015.77	253,292.13
Summit	30,643.83	319.30	30,963.13
County unknown	198,746.03	2,339.39	201,085.42
Smelters	11,867,406.57	1,041.77	11,868,448.34
Total	19,456,594.70	22,826.51	19,479,421.21

STATEMENT OF BULLION OPERATED ON AT THE UNITED STATES MINT AT DENVER, COLO., DURING THE CALENDAR YEAR 1898—Continued.

County.	Gold.	Silver.	Total.
FOREIGN TO COLORADO.			
Alaska	$21,660.30	$169.93	$21,830.23
Africa	131.99	.09	132.08
Arizona	222,091.00	2,134.71	224,225.71
California	189.98	.67	190.65
Idaho	837.44	4.59	842.03
Mexico	4,656.54	45.89	4,702.43
Montana	342.90	.72	343.62
Nevada	1,075.28	5.27	1,080.55
New Mexico	112,850.53	495.45	113,345.98
Oregon	3,217.63	10.06	3,227.69
Peru	135.80	.03	135.83
South Dakota	218,949.40	481.30	219,430.70
Utah	84,897.43	1,497.79	86,395.22
Wyoming	3,589.42	18.03	3,607.45
Total	674,625.64	4,864.53	679,490.17
MISCELLANEOUS.			
Jewelry	35,009.86	311.27	35,321.13
Uncurrent United States coin	68.93		68.93
Redeposits	1,674.59	19.61	1,694.20
Total	36,753.38	330.88	37,084.26

RECAPITULATION.

Source of production.	Gold.	Silver.	Total.
Colorado, including smelters	$19,456,594.70	$22,826.51	$19,479,421.21
Foreign to Colorado	674,625.64	4,864.53	679,490.17
Miscellaneous	36,753.38	330.88	37,084.26
Grand total	20,167,973.72	28,021.92	20,195,995.64

V.

IDAHO.

By J. W. CUNNINGHAM,

Assayer in charge United States assay office at Boise, Idaho.

The mineral output of the State of Idaho during the year 1898, was as follows:

Gold	$1,895,566
Silver	6,796,541
Lead	4,899,171
Total	13,591,278

A light snow fall during the winter caused a reduction in the gold output of $229,767 from the placer mines. The slight falling off of the silver and lead production of the Coeur d'Alene district is attributed to no special cause.

OWYHEE COUNTY.

This is the only county that has made a material increase in the production of the precious metals over last year. Here are located the most extensive silver-gold bearing properties of the State, and the product exceeds that of any other county in the State.

Among the leading mines being operated here may be mentioned the Trade Dollar Consolidated, the De Lamar, the Blackjack, the Poorman, the Cumberland, and the Morning Star.

SHOSHONE COUNTY.

There has been considerable decrease in the product of the placers of this county. This is caused by the exhaustion of the once rich placer district of Murray.

Fifteen of the Coeur d'Alene silver-lead mines were operated this year, although there is a slight falling off of the product as compared with last year. Under favorable conditions the number of producing mines in this district would be doubled in another year. In fact, the development of the immense bodies of silver-lead ore here has just fairly begun.

IDAHO COUNTY.

The developments in the mining industry in this county are attracting more attention than in any other portion of the State, or of the whole northwest. While the production has not increased, it is confidently expected that in a short time the output of this county will equal that of the entire State of recent years. A considerable amount of new placer ground, as well as the old abandoned claims, are being operated on a large scale by improved methods and machinery, and are found to be very valuable. Quartz mining has been the leading attraction for investment and development during the year. The now famous Buffalo Hump mines were discovered this year and the rush to this district has been a repetition of that which has followed all the rich discoveries of the country.

The development in the rich copper prospects of the Seven Devils district has been very active during this year and, with the advent of a railroad in the near future, this will be the most active camp in the State.

BOISE COUNTY.

Boise County, which has been since the first discovery in 1862 the home of the placer miner, has fallen off in production on account of the light snow fall, the source of the water supply. A number of large dredging plants are in operation here and will greatly increase the product of the county hereafter.

IN OTHER COUNTIES.

The product and the conditions in the other counties have made no material change. A new district in Cassia County is attracting attention, and while the output is small, there has been a great deal of development work done on the prospects, and the district promises well for the future.

Product of Gold and Silver in Idaho, by Counties, Calendar Year 1898.

Counties.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Value.	
Ada	670	$13, 850	148	$191	$14, 041
Bannock	514	10, 625	104	134	10, 759
Bingham	711	14, 698	72	93	14, 791
Blaine	537	11, 101	248, 354	321, 104	332, 205
Boise	10, 008	206, 884	2, 685	3, 472	210, 356
Canyon	413	8, 537	97	125	8 662
Cassia	1, 031	21, 313	113	146	21, 459
Custer	2, 653	54, 842	156, 968	202, 949	257, 791
Elmore	2, 499	51, 659	981	1, 268	52, 927
Idaho	9, 845	203, 514	2, 532	3, 274	206, 788
Lemhi	12, 569	259, 824	2, 086	2, 697	262, 521
Lincoln	1, 619	33, 468	202	261	33, 729
Oneida	909	18, 791	84	109	18, 900
Owyhee	34, 275	708, 527	1, 320, 210	1, 706, 938	2, 415, 465
Shoshone	13, 011	268, 961	3, 521, 982	4, 553, 674	4, 822, 635
Washington	434	8, 972	82	106	9, 078
Total	91, 698	1, 895, 566	5, 256, 700	6, 796, 541	8, 692, 107

Total Product of Idaho during the Calendar Year 1898.

Metals.		Quantity.	Value.
Gold	fine ounces	91. 698	$1, 895, 566
Silver	do	5, 256, 700	6, 796, 541
Lead	pounds	122, 479, 275	4, 899, 171
Total			13, 591, 278

Gold and Silver Bullion Produced in Idaho Deposited at Government Institutions during the Calendar Year 1898.

Institutions.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Value.	
MINTS.					
San Francisco	1, 234. 359	$25, 516. 46	389. 03	$502. 98	$26, 019. 44
Philadelphia	1, 025. 681	21, 202. 70	7, 576. 74	9, 796. 19	30, 998. 89
Denver	40. 510	837. 41	8. 26	10. 68	848. 09
ASSAY OFFICES.					
Boise	24, 924. 462	515, 234. 37	9, 543. 92	12, 339. 61	527, 573. 98
Helena	13, 562. 794	280, 367. 92	2, 582. 59	3, 339. 10	283, 707. 02
New York	1, 013. 181	20, 944. 32	98. 70	127. 62	21, 071. 94
Seattle	97. 065	2, 006. 51	16. 41	21. 21	2. 027. 72
St. Louis	12. 065	249. 41	. 64	. 83	250. 24
Total	41, 910. 117	866, 359. 10	20, 216. 29	26, 138. 22	892, 497. 32

SOURCE OF THE DEPOSITS AT THE UNITED STATES ASSAY OFFICE, BOISE, IDAHO, CALENDAR YEAR 1898.

Counties.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Value.	
Ada	515.725	$10,660.99	93.44	$120.81	$10,781.80
Bannock	300.794	6,217.97	29.47	38.10	6,256.07
Bingham	656.266	13,566.21	30.88	39.92	13,606.13
Blaine	218.021	4,506.88	248.70	321.55	4,828.43
Boise	8,920.821	184,409.73	2,341.55	3,027.46	187,437.19
Canyon	259.237	5,358.90	19.84	25.65	5,384.55
Cassia	786.167	16,251.52	65.39	84.54	16,336.06
Custer	368.044	7,608.15	184.40	238.42	7,846.57
Elmore	1,851.844	38,281.02	656.20	848.42	39,129.44
Idaho	4,244.108	87,733.51	1,356.81	1,754.27	89,487.78
Lemhi	2,371.654	49,026.44	423.07	547.00	49,573.44
Lincoln	1,102.102	22,782.47	89.94	116.29	22,898.76
Oneida	588.578	12,167.00	70.61	91.29	12,258.29
Owyhee	1,036.641	21,429.27	3,587.49	4,638.37	26,067.64
Shoshone	1,472.511	30,439.50	318.16	411.36	30,850.86
Washington	231.949	4,794.81	27.97	36.16	4,830.97
Total	24,924.462	515,234.37	9,543.92	12,339.61	527,573.98
Deposits of—					
Colorado	14.962	309.28	5.83	7.54	316.82
Montana	8,046.107	166,327.80	504.25	651.95	166,979.75
Oregon	19,800.754	409,317.92	5,749.80	7,434.08	416,752.00
Utah	145.941	3,016.87	35.23	45.54	3,062.41
Washington	74.441	1,538.82	22.11	28.59	1,567.41
Northwest Territory	229.700	4,748.31	62.18	80.40	4,828.71
Redeposits	12,811.998	264,847.50	2,764.77	3,574.66	268,422.16
Grand total	66,048.365	1,365,340.87	18,688.09	24,162.37	1,389,503.24

VI.

MONTANA.

By Eugene B. Braden.
Assayer in charge United States assay office, Helena, Mont.

The quantities and values of the precious metals that composed the production by the mines and placers of Montana during the calendar year 1898 were as follows:

Description.	Quantity.	Value.
Gold, fine ounces	253,867.787	$5,247,912.91
Silver, fine ounces (coining value)	14,818,661.98	19,159,482.17
Copper, fine pounds, at $12.03 per hundredweight	216,979,354	26,102,616.29
Lead, fine pounds, at $3.78 per hundredweight	21,403,592	809,055.78
Total		51,319,067.15

These metals, compared with corresponding yields for the previous year, show the following changes:

Metal.	1897.		1898.		Increase or decrease.
	Quantity.	Value.	Quantity.	Value.	
Gold, fine ounces	217,514.846	$4,496,430.92	253,867.787	$5,247,912.91	*a* $751,481.99
Silver, do	16,807,346.06	21,730,710.03	14,818,661.98	19,159,482.17	*b* 2,571,227.86
Copper, pounds	237,158,540	26,798,915.02	216,979,354	26,102,616.29	*b* 696,298.73
Lead, do	25,794,974	928,619.06	21,403,592	809,055.78	*b* 119,563.28
Total		53,954,675.03		51,319,067.15	
Net decrease					2,635,607.88

a Increase. *b* Decrease.

The year 1897 witnessed the maximum production of copper ores in the State. In view of this fact, and that the greatest proportion of silver and copper values are derived from copper ores, as well as of other circumstances that attended the mining industry in 1898, the above showing made for the industry during the past year is most encouraging.

Montana is rightly classed as a most important gold-producing region of the United States. The increase of more than $750,000 in the value of this metal product during the year 1898 warrants the hope of an increasing gold production for the future in keeping with the general progressive tendency that now characterizes the world's important gold-producing countries.

The amounts of gold originating from placers, mills, and cyanide plants of the State, and from copper, lead, and smelting ores, during 1898, compared with those of the previous year, were as follows:

Classed as—	1897.		1898.		Increase or decrease.
	Fine ounces.	Value.	Fine ounces.	Value.	
Placer bullion	33,418.923	$690,830.43	31,662.452	$654,520.97	[a]$36,309.46
Mill bullion	66,135.432	1,367,140.71	80,590.965	1,665.963.10	[b]298,822.39
Cyanides	9,993.117	206,576.06	19,235.180	397,626.46	[b]191,050.40
From copper ores	51,463.070	1,063,836.08	51,408.020	1,062,698.09	[a]1,137.99
From lead ores	8,529.345	176,317.22	8,369.027	173,003.14	[a]3,314.08
In smelting ores	47,974.959	991,730.42	62,602.143	1,294,101.15	[b]302,370.73
Total	217,514.846	4,496,430.92	253,867.787	5,247,912.91	
Net increase					751,481.99

[a] Decrease. [b] Increase.

The decrease in placer gold was due principally to a lessened output by the dredges working on Grasshopper Creek, in Beaverhead County. The machines working on gravel in Madison County and at other localities, however, showed an increased output over 1897, while from "washing" and other methods the placer yield was about that of the preceding year.

The increase of nearly $300,000 in gold from the mills of the State was due to a general improvement in this branch of the industry. Although several of the large properties report various amounts of increase, a considerable portion of the increase in mill bullion should be credited to a class of small properties that work intermittently.

The yield of gold from cyanide plants in 1898 is an interesting feature of the production. From a small beginning of a few years ago, this product continued unimportant until 1897, when it suddenly increased to about 10,000 ounces. This was nearly doubled in 1898, and a constant growth for a number of years is anticipated.

The gold from the copper and lead ores in 1898 shows but little or no change from that of 1897. The increase of $300,000 in gold originating from dry ores and concentrates, generally classed as smelting ores, was due to an increased tonnage from mines yielding this class of ore. The Mayflower, West Mayflower, and Monitor mines, in Madison County, the Nancy Hanks mine, in Granite County, and the Gold Mountain mine, in Jefferson County, were the more important properties that produced this class of ore and showed increases in the amount of gold put out.

The amounts of silver originating from various sources, when compared with corresponding figures for 1897, show the following results:

Classed as—	1897.		1898.		Increase or decrease.
	Fine ounces.	Value.	Fine ounces.	Value.	
Placer bullion	5,098.48	$6,591.97	4,021.33	$5,199.24	[a]$1,392.73
Mill bullion	633,643.85	819,256.69	1,028,619.10	1,329,931.77	[b]510,675.08
Cyanides	33,937.50	43,878.79	78,006.95	100,857.47	[b]56,978.68
From copper ores	10,710,317.02	13,847,682.60	9,495,911.71	12,277,542.46	[a]1,570,140.14
From lead ores	4,175,792.56	5,399,004.52	2,763,991.44	3,573,645.50	[a]1,825,359.02
From smelting ores	1,248,556.65	1,614,295.46	1,448,111.45	1,872,305.73	[b]258,010.27
Total	16,807,346.06	21,730,710.03	14,818,661.98	19,159,482.17	
Net decrease					2,571,227.86

[a] Decrease. [b] Increase.

The amount of silver secured with the placer gold is unimportant, and decreases or increases from year to year as the gold varies. The increased yield of silver in the cyanide precipitates is also of small importance in its bearing on the total production of silver by the State, although it is an item of considerable importance for profit to the Montana Mining Company, Limited, who are the largest producers of this class of silver product in the State.

The improvement in the amount of silver contained in mill bullion arose principally from the reopening and operation of the famous Granite Mountain and Bimetallic mines and mills of Phillipsburg. This feature is especially attractive in that it marks the revival in the State after a long idleness of the mining and working of ores carrying values almost exclusively in the silver contained. The consolidation of the two companies above under a single management was accomplished in 1898, and because of the economy thereby effected enough of a margin is realized in actual operations to yield a profit at the present market price of silver. It is believed that in the coming year these properties will reach the full production that the reopening anticipated and the mining of silver in Montana as an industry will regain some measure of its former prestige, the Granite Mountain mine alone having paid more than $12,000,000 in dividends.

The increase of silver from smelting ores came from the mines mentioned above as showing an increased yield of gold from the exclusive silver producers at Butte and from the Gray Eagle and B and G mines in Jefferson County. The yield of silver from copper and lead ores was much decreased because of smaller tonnages of each class extracted and reduced as well as because they carried less value in silver to the ton.

The decrease in the production of copper was 20,179,186 pounds. However, an increased average price for this metal in the market during the year made the value of this lessened quantity in 1898 nearly equal to that of the greater amount produced in the previous year.

The upward tendency of both copper and lead was due to the general industrial activity of the year. Electrical, shipbuilding, and other work were especially prominent, and conditions at the close of the year indicated that the value of the Montana output for the coming year would materially exceed that of any year in the past.

The heaviest falling off in the amount of copper in 1898 over 1897 was suffered by the Anaconda Copper Mining Company, who are the largest producers of this metal in the State. A partial explanation for this is given by Mr. Marcus Daly, the manager of these properties, in his report for the fiscal year ending June 30, 1898, as follows:

> The product of the Anaconda mine shows a considerable decrease from last year owing to a large portion of the mine having been closed down for several months on account of the fire. This has prevented the extraction of ore and has reduced the grade as well as the quantity of what was shipped, as the closed portion of the mine contains a higher grade of ore than the open portion. The fire was not of great extent, and the greatest difficulty was in the gases thrown off.
>
> This fire had been smoldering for years and we supposed it was extinguished; took out the bulkheads and opened up that portion of the mine with the view of taking ores from the stopes. When the air penetrated the fire district little patches that were still smoldering broke out afresh and threw off so much gas that the men were driven from the workings and we were obliged to replace the bulkheads. Water was purchased from the city waterworks, and with all the available mine water was entirely extinguished. We increased our pumping machinery to handle the increased volume of water, but were unable to keep the lower levels from flooding. The work of reopening this portion of the mine has commenced and the water has been low-

ered. The drifts have been filled with débris from the effects of the flooding, and a good deal of work will be necessary to clean the mine up and put it in condition to produce the maximum quantity of ore. However, I expect to get this done in from sixty to ninety days.

The output of lead in 1898 fell off 4,391,382 pounds from that of 1897. This decrease came principally from a smaller tonnage of lead ores, output by the mines of the Castle district. Previous to 1897 this district was without transportation facilities, but in that year the Montana Railway was built into the camp and the lead ore that had been accumulated from the mines in previous years was shipped out and went into the returns for that year.

To afford an intelligent idea of the demand created for labor, steel, blasting powders, castings, general hardware, and all other materials necessary to the mining and reduction of gold, silver, copper, and lead in Montana, the following extracts are made from the report of the Anaconda Copper Mining Company. The influence and benefits arising from operations of such magnitude are felt in many branches of industry in Montana and all sections of the United States.

The report gives the details of mining expenditures for the year as below.

Items.	Syndicate group.	Anaconda group.	Total.	Cost per ton.
Assay expenses and salaries	$4,881	$4,435	$9,316	$0.006
Candles	23,681	18,080	41,761	.029
Electric light	8,321	6,595	14,916	.010
Coal	117,501	90,360	207,861	.142
Expenses	10,934	9,255	20,189	.014
Freight on ore	255,946	196,135	452,081	.310
Fuse and caps	16,942	10,062	27,004	.018
Labor	1,825,931	1,550,571	3,376,502	2.314
Legal expenses	7,309	18,991	26,300	.018
Mess expenses	1,687	2,436	4,123	.003
Oil	9,938	7,041	16,979	.012
Personal injuries	18,856	17,558	36,414	.025
Powder	91,359	55,937	147,296	.101
Precipitating expenses		6,110	6,110	.004
Precipitating labor		19,012	19,012	.013
Precipitating scrap material		9,020	9,020	.006
Salaries, including management	54,108	42,172	96,280	.066
Stable expenses	2,857	3,165	6,022	.004
Sundry supplies	25,560	20,674	46,234	.032
Taxes	35,490	35,490	70,980	.049
Timber	248,135	181,754	429.889	.295
Tools and utensils	20,503	16,924	37,427	.026
Water	11,265	11,055	22,320	.015
Repairs:				
Buildings and structures	873	1,973	2,846	.002
Machinery and plant	177,499	203,032	380,531	.261
Construction:				
Building and structures	34,070	51,220	85,290	.058
Machinery and plant	55,567	97,514	153,081	.105
Total	3,059,213	2,686,571	5,745,784	3.938
Deduct one-half of profits of subsidiary departments			241,861	.166
Net cost			5,503,923	3.772

The average cost of mining per ton of ore was, therefore, $3.94 actual cost, or $3.77 net cost, after deducting profits of subsidiary departments.

The following table shows the details of expenditures at the reduction works for the year:

Items.	Total expenditures.	Cost per ton.
Custom ores	$164, 398. 29	$0. 113
Concentrating	1, 124, 508. 96	. 770
Smelting	2, 810, 268. 98	1. 926
Converting and casting	1, 073, 938. 85	. 736
Blast furnace	390, 106. 96	. 264
Refining	603, 123. 77	. 414
Reduction of silver mud (slimes for electrolytic plant)	73, 467. 10	. 050
Melting (construction)	10, 125. 76	. 007
Total	6, 249, 938. 67	4. 283
Deduct one-half of profits of subsidiary departments	241, 861. 62	. 166
Net cost	6, 008, 077. 05	4. 117

The cost of treatment was $4.28 per ton actual cost, or $4.12 per ton net cost, after deducting profits of subsidiary departments.

The net cost of mining and treatment was, therefore $7.89 per ton of ore. The average yield was $11.22 per ton, showing a profit of $3.33 per ton.

The income account, condensed, is as follows:

Sales of product		$18, 254, 849
Profits of subsidiary departments		483, 723
Royalties, rents, and dividends received		79, 285
Total		18, 817, 857
Mining expenses	$5, 745, 784	
Reduction works	6, 249, 939	
Freights, railroads and ocean	696, 298	
Refining charges at seaboard	968, 891	
Interest on advance	34, 900	
General expenses, New York	102, 638	
Decrease in metals on hand	1, 468, 161	
		15, 266, 611
Balance profit for the year		3, 551, 246
Dividends paid (10 per cent) on stock		3, 000, 000
Surplus for the year		551, 246
Add surplus, July 1, 1897		5, 644, 563
Balance June 30, 1898		6, 195, 809

The items of sales of products were: Copper, $14,605,589; silver, $3,237,278; gold, $411,983; total, $18,254,849. The value of metals on hand and in course of treatment on June 30, 1897, was $5,521,031; on June 30, 1898, it was $4,052,870—a decrease o f$1,468,161, as above. The total quantity of ore treated since the first opening of the mines in 1880 has been 9,614,263 tons. The total product has been 550,962 short tons copper; 40,658,103 ounces silver, and 135,244 ounces gold. The coining value of these amounts of gold and silver are $2,795,741.60 and $52,568,052.36, respectively. The value of the copper at the average price of $12.50 per hundredweight is $137,740,500. The total value of the yield from the mines of this company to date has, therefore, been $193,104,293.96. The averege yield has been 5.73 per cent copper, 4.23 ounces silver, and 0.014 ounce gold to the ton.

Extracts from the annual report of the Boston and Montana Consolidated Copper and Silver Mining Company are inserted below, as these likewise show the magnitude of another large copper-producing property where gold and silver occur as by-products, and afford an idea of the future operations of such mines.

The financial report of this company for 1898 is as follows:

Gross receipts from sales of copper, silver, gold, and bluestone	$7,448,600
Total expenses of producing, handling, etc	4,053,957
Net income	3,394,643
Profit, treating custom and lease ores	113,743
Total net income	3,508,386

Superintendent Klepetko reports:

> The ore reserves at the Pennsylvania shaft have been increased about 27 per cent—to 313,000 tons; the shaft has been sunk 159 feet, and is below the tenth level.
>
> The ore reserves at the Mountain View shaft have been increased 7 per cent—to 439,000 tons. At the West Colusa shaft ore reserves have been increased 104 per cent—to 811,000 tons. This shaft has been sunk 200 feet, to the tenth level, but no development as yet has been done on the ninth or tenth levels. A large increase in ore reserves should be made at this mine during the coming year from the developments on these levels.
>
> At the Leonard shaft ore reserves have been increased 95 per cent—to 400,500 tons; the shaft has been sunk 100 feet, to the tenth level. At the East Colusa shaft ore reserves have been nearly quadrupled, and are now nearly 192,000 tons. We have started on the Moose Mine again, and have extracted about 1,200 tons, putting the same amount in sight. The ore reserves here are 5,000 tons.
>
> The total amount of openings aggregate 33,080 feet, or 6¼ miles. The amount of ore in sight January 1, 1899, was 2,161,597 tons. The yield of these reserves will approximate last year's yield per ton. Our predictions regarding finding considerable bodies of low-grade ores at the East Colusa mines too low to be formerly worked at a profit have been verified. This also has been the case to some extent at the West Colusa.
>
> Construction has been confined principally to the finishing of work on the new boiler plant and the new power house between the West Colusa and the Leonard shafts. The cost of extraction per ton has been slightly higher than last year. This can be explained by the larger expense of the development work, which has increased the ore reserves approximately 860,000 tons. This development work has all been charged to operating expenses.
>
> The two new blast furnaces at Great Falls are now completed and one of them has been running successfully for a month. The troubles with the new reverberatory have been overcome, so that during the year we can surely look to a lowering of costs in both of these departments. The present capacity of the concentrator is from 1,000 to 2,000 tons daily.
>
> The electrolytic plant has been brought up to a capacity of 4,000,000 pounds monthly, and is operated more cheaply than ever.
>
> While the costs have not been lowered in all departments, yet we can say that we have treated each ton of ore more cheaply than ever. The fact that we are to-day mining portions of ore bodies which were formerly allowed to stay in the mines, it not being then profitable to mine them, and the ability to successfully treat lower grade ores, insures the life of the mines for a much longer period.

The number of men employed underground in the State during 1898 was 11,096. Of this number 1,668 were engaged in coal mining, leaving 9,428 employed in precious-metal mining. The number of men working in the mills and smelters is very nearly equal to those engaged underground.

A number of enterprises in prospect at the close of 1897, contemplated to affect the future production of precious metals, were materialized in 1898. The Missouri River dam at Canyon Ferry, then under construction, was completed, the electrical plant installed, and the power supplied to the United Smelting and Refining Company's works at East Helena. The cost for power to this company is, therefore, cheapened. The Peck concentrator, near East Helena, was also put into operation on low-grade material. These works also receive their power from the plant on the Missouri River.

The total value taken from placer and quartz in Montana since the first discovery of gold, in 1862, exceeds $800,000,000. Prior to 1882, statistics were not collected and preserved regularly. The following table, taken from the report on Montana for 1897, and completed to the close of 1898, is again here inserted because it is believed the figures are as reliable as it is possible to obtain, and because of many requests that have been made for the information they contain:

Production of Gold, Silver, Copper, and Lead in the State of Montana from the Year 1862 to 1898, Inclusive.

Year.	Gold.	Silver. *a*	Copper.	Lead.	Total.	Yearly increase.
						Per cent.
1862 to 1881, inclusive..	$200,000,000	$11,000,000	....	....	$211,000,000	....
1882....................	2,550,000	4,370,000	$1,539,860	....	8,459,860	....
1883....................	1,800,000	6,000,000	3,452,960	$226,424	11,479,384	37½
1884....................	2,170,000	7,000,000	5,386,500	246,326	14,802,826	31
1885....................	3,400,000	11,500,000	6,779,800	274,350	21,954,150	50
1886....................	4,422,000	13,849,000	5,761,200	494,132	24,526,332	12
1887....................	5,978,536	17,817,548	8,853,750	607,662	33,257,496	35½
1888....................	4,200,253	15,790,736	15,103,946	569,160	35,664,095	7½
1889....................	3,500,000	19,393,939	13,334,970	456,975	36,685,884	3
1890....................	3,300,000	20,363,636	16,656,437	675,392	40,995,465	11½
1891....................	2,890,000	20,139,394	14,377,336	1,229,027	38,635,757	5½
1892....................	2,891,386	22,432,323	19,105,464	990,035	45,419,208	18
1893....................	3,576,000	21,858,780	16,630,958	964,089	43,029,827	*b*5
1894....................	3,651,410	16,575,458	17,233,718	730,551	38,191,137	*b*11
1895....................	4,327,040	22,886,992	21,114,869	754,360	49,083,261	28½
1896....................	4,380,671	20,324,877	25,356,541	670,010	50,732,099	3½
1897....................	4,496,431	21,730,710	26,798,915	928,619	53,954,675	6
1898....................	5,247,913	19,159,482	26,102,616	809,056	51,319,067	*b*5
Total	262,781,640	292,192,875	243,589,840	10,626,168	809,190,523	....

a Coining rate. *b* Decrease.

The statistical tables of the Montana production for 1898 that appear in connection with this review and showing the quantity and value, the origin by counties and from classes of ore, together with the final disposition of the ores and bullion for treatment or sale, have been assembled from confidential returns furnished by the producers of their output. The totals thus obtained are verified by the statistics of the United States mints and assay offices and by the summaries that are furnished from the records of the smelters and refineries.

BEAVERHEAD COUNTY.

This county, lying in the southwestern part of the State, contains two important mineral-producing regions. One of these is in the northern portion of the county, about Lion Mountain, where are located the mines and reduction works of the Hecla Consolidated Mining Company. These were active throughout the year, and a largely increased yield of gold, silver, and lead testifies to the ability and success of the management. In 1897 the running expenses had exceeded the earnings and at the close of the year the continued operations of these properties during 1898 were largely problematical. The improvement of the past year would indicate that a new era of activity has dawned.

The other center of mining is at and about Bannack, where both placer and quartz mining are pursued. This was the scene of the earliest placer mining of importance in the State, and during recent years has come again into prominence because of the dredges that have been working on Grasshopper Creek. The output from these during 1898 was considerably decreased, owing to much of the best ground having been worked over by them previously. The dredge of the Bon Accord mines, which had been completed late in 1897, met with an accident at the opening of the season and was idle throughout 1898 in consequence. The ground under lease to the Chicago Mining and Development Company, on Grasshopper Creek, was exhausted during the year and the dredge will be transferred to the Conrey placers, at the mouth of Alder Gulch, in Madison County, where it will be operated during the summer of 1899. Some quartz mining is also done at Bannack, where the Western Mine Enterprise Company owns properties equipped with a mill. The output is gold bullion, but the yield in 1898 was not as great as 1897.

The yield from the mines and placers of the county in 1898 compared with 1897 was as follows:

Year.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
1897	12,383.324	$255,986.03	216,673.67	$280,143.73
1898	9,591.674	198,277.50	386,263.92	476,139.21

BROADWATER COUNTY.

That portion of the Missouri River Valley lying west of the Big Belt Mountains is embraced in Broadwater County and contains the mining districts that center about Winston, Radersburg, Hassel, and Diamond City. In 1898 this county produced 10,552.021 fine ounces of gold, 284,168.06 fine ounces of silver, and 1,600,000 pounds of lead. The total value of these products was $646,018.84, being a decrease of $290,765.64 from 1897, when the aggregate production was $936,784.48. This falling off was principally due to the idleness of the Stray Horse mine, near Winston, and to a decreased output by other properties in the same district. However, the Winston district continued to be the greatest producing center. Both the East Pacific and Custer mines shipped ore during the entire year. Other properties in the district forwarded a considerable aggregate in small lots.

The Diamond Hill mine, at Hassel, is still inoperative, because the company has not yet secured the sufficiently cheap power it seeks to handle its mine product profitably. The Keating mine, at Radersburg, was in operation during the year and makes a creditable report of production.

CASCADE COUNTY.

The precious metal yield from this county in 1898, which originated at the mines near Barker and Neihart, was as follows: Gold, 1,008.563 fine ounces; silver, 430,397.96 fine ounces; lead, 3,729,158 pounds; or a total of $718,285.15. This is an increase of $161,187 since 1897.

The Broadwater, Florence, and other of the leading producers in previous years continued to work during 1898. The most important producer was the Big Seven. This is a newly developed property, located on Snow Creek, 7 miles from Neihart.

DEER LODGE COUNTY.

The production of gold and silver in Deer Lodge County during 1897 and 1898 was as follows:

Metals.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Value.	
Gold	18,143.307	$375,055.44	23,504.896	$485,889.33	$110,833.89
Silver	9,111.45	11,780.46	10,732.13	13,875.88	2,095.42
Total	....	386,835.90	....	499,765.21	112,929.31

This production originated from the Bald Butte mine, from the mines in the vicinity of Caloma, Cable, and Granite Butte, and from the placers along streams and gulches tributary to the Big and Little Blackfoot rivers. However, the Mammoth mine at Caloma and the Gold Coin mine near Cable, which were important producers in 1897, were both idle during the closing months of 1898.

The enormous reduction and refining works of the Anaconda Copper Company are in Deer Lodge County, at the city of Anaconda. These were in continuous operation throughout the year 1898, and many improvements and additions were made to facilitate the reduction of ore and to increase the capacity of the works.

FERGUS COUNTY.

The returns for the mining industry in this county during 1898 show a material improvement over 1897. The total yield of gold and silver was $128,549.45, which is about twice the yield shown for this county during 1897.

The Gilt Edge mine, at Maiden, is the most important property in Fergus County at the present time. This mine was for some time involved in litigation arising from indebtedness incurred by former operators, but this difficulty has been adjusted and the property passed recently into the possession of capitalists, who are now building a cyanide plant of large capacity for the cheap reduction of the developed ore bodies. These works will be started at their full capacity in 1899, and it is believed that hereafter a constantly increasing production will be credited to Fergus County because of the yield from the Gilt Edge and the development of other properties in the county.

FLATHEAD COUNTY.

The mines of this county increased their yield of gold and silver about 25 per cent during 1898 over what had been the output in 1897. The value of these metals in 1898 were: Gold, $31,477.33; silver, $97,279.86; total, $128,757.19. The condition of the mining industry in Flathead County shows some improvement in the development of ore bodies and in additions to the milling and concentrating plants. A number of enterprises looking to the growth of the mineral development in the county are on foot. As these are on a substantial basis, it is believed the year 1899 will witness a more rapid advance in the condition of mining in Flathead County than in the past.

GRANITE COUNTY.

The production of gold and silver in Granite County during 1897 and 1898 was as follows:

Metals.	1897.		1898.	
	Fine ounces.	Value.	Fine ounces.	Value.
Gold	9,136.252	$188,863.09	8,514.411	$176,008.50
Silver	450,188.26	582,061.59	1,003,416.91	1,297,347.11
Total		770,924.68		1,473,355.61

From the above it will be seen that the value of the precious metals extracted was nearly doubled in 1898, although the value of the gold was about the same as it had been in 1897. The gain, therefore, arose in the value of the silver produced, this having been largely increased because of the consolidation and operation of the Granite Mountain and Bimetallic properties at Philipsburg, mention of which has already been made. The Nancy Hanks, at Garnet, continued to yield steadily throughout the year and produced the greater part of the values from the district in which it is situated. The Moose Lake district, the Golden Scepter mine, at Quigley, as well as some of the other localities and mines, showed little change from their condition in 1897.

JEFFERSON COUNTY.

This county is one of the leading producers in the State and offers a handsome gain in 1898 over the yield of 1897, as appears in the comparison below of the gold and silver produced:

Metals.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Gold	7,878.934	$162,872.02	10,943.572	$226,223.71	$63,351.69
Silver	71,240.64	984,230.32	1,036,889.28	1,340,624.52	356,394.20
Total		1,147,102.34		1,566,848.23	419,745.89

The Elkhorn mine still continued to be the largest producer of values in the county. Among other properties that showed large yields in 1898 were the Ruby mine, at Bernice, the Eva May mine, near Basin, and the Grey Eagle, at Wickes. This last mine is a new producer. It is the property of Holmes & Dahlman, and the output in 1898 added very materially in the making up of the increase shown above for this county. The mines at Basin were idle during the year. The output of the other mines in the county made little change from their condition of the former year.

LEWIS AND CLARKE COUNTY.

This county made a large gain in its output of gold in 1898. Below is a comparison with the yield of 1897:

Metals.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Gold	31,762.517	$656,589.49	43,889.555	$907,484.34	$250,894.85
Silver	131,077.04	169,473.34	166,956.31	215,862.70	46,389.36
Total		826,062.83		1,123,347.04	297,284.21

The increase of more than a quarter million dollars in the gold production was due to the operation of the cyanide plant of the Montana Mining Company, Limited, at Marysville, during the entire open season from April to December; to the reopening of the Belmont mine, at Marysville, after a long idleness; to the district about York coming forward with a considerable production after having been dormant for some years, and to the increased yields from all the mills and placers.

The districts about Helena, Marysville, Rimini, Empire, Gloster, Gould, and York all gave greater promise for larger productions at the close of 1898 than they did at the beginning of the year. This county in 1899 will probably show the largest yield of gold of any of the several counties in the State.

MADISON COUNTY.

This county also made a marked gain in its production of gold and silver, being the largest in amount of any in the State in 1898.

The following table, showing the amounts for 1897 and 1898, is a creditable exhibit:

Metals.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Gold	32, 771. 644	$677, 450. 01	47, 240. 616	$976, 550. 20	$299, 100. 19
Silver	62, 412. 33	80, 694. 73	111, 294. 95	143, 896. 50	63, 201. 77
Total	....	758, 144. 74	....	1, 120, 446. 70	362, 301. 96

The mines and placers of Madison County that were worked in 1897 generally contributed to the increase for 1898. There were no important mines added to the already large list of producing properties. While the placers of Alder Gulch and the Ruby and Madison rivers and their tributaries and the quartz mines at Richmond Flat, Norris, Pony, Red Bluff, Parrott, Sheridan, Virginia City, Rochester, and Silver Star all shared in increasing the output of gold $300,000 in Madison County during 1898, the greatest gain by any single property was shown by the Mayflower group, near Parrott. This was due to the extraction of a greater tonnage of the high grade ore therein than formerly.

The erection and operation of a number of additional dredging plants in Madison County is in contemplation for 1899, and if realized will materially increase the yield from the placers.

The large 60-stamp mill erected in 1897 to reduce the ores from the Kennett mine was idle throughout the year, and the added gain that was expected from this property for 1898 was not realized. The new smelter of the Parrott Copper Company, at Parrott, was also idle. The branch of the Northern Pacific Railroad that was built to Twin Bridges early in 1898 proved an aid to the shipment of ores from the section tributary to it.

SILVER BOW COUNTY.

The production of copper in this county immediately attracts the attention to Butte, from the vicinity of which the entire output originates. While large amounts of both gold and silver are credited to Silver Bow County, their occurrence is as a "by-product" in the reduction of the copper ores. The yield of gold and silver for 1897 and 1898 was as follows:

Metals.	1897.		1898.	
	Ounces.	Value.	Ounces.	Value.
Gold	54, 198. 037	$1, 120, 372. 86	55, 343. 589	$1, 144, 053. 52
Silver	10, 710, 815. 45	13, 848, 327. 04	8, 996, 555. 01	11, 631, 909. 51
Total	....	14, 968, 699. 90	....	12, 775, 963. 03

The various companies mining at Butte in 1897 continued active in 1898. The principal ones were the Anaconda, the Boston and Montana, the Parrott, the Colorado, the Montana Ore Purchasing Company, the Butte Reduction Works, the Lexington, and the Alice. The properties of the Washoe Copper Company are in process of development, and reduction works for the treatment of the ore from these are contemplated.

The influence that affected the production in Choteau, Teton, Meagher, Missoula, and Ravalli counties showed little or no change in 1898 from conditions existing in previous years. In Park County the activity at Bear Gulch promises soon to bring this county into greater prominence as a producer than it has been for a number of years past.

The following tables give much information not previously set forth herein and have been prepared with the utmost care to avoid duplications. The showing they make of the yield of precious metals is a source of pride to those interested in Montana's mineral output:

DEPOSITS AT THE UNITED STATES ASSAY OFFICE, HELENA, MONT., DURING THE CALENDAR YEAR 1898.

Counties, etc.	Gold.		Silver.		Total value.
	Standard ounces.	Value.	Standard ounces.	Commercial value.	
MONTANA.					
Beaverhead	1,439.674	$26,784.63	94.40	$47.26	$26,831.89
Broadwater	2,013.049	37,452.06	308.40	154.48	37,606.54
Carbon	58.822	1,094.36	3.83	1.94	1,096.30
Cascade	9.515	177.02	3.20	1.60	178.62
Custer	69.118	1,285.91	11.48	5.76	1,291.67
Deerlodge	23,579.962	438,696.86	4,641.94	2,321.86	441,018.72
Fergus	3,205.717	59,641.25	134.83	67.45	59,708.70
Flathead	1,136.351	21,141.42	266.54	133.30	21,274.72
Granite	2,460.457	45,775.91	463.24	231.80	46,007.71
Jefferson	3,071.774	57,149.21	654.31	327.44	57,476.65
Lewis and Clarke	30,580.272	568,935.06	17,999.01	9,000.58	577,935.64
Madison	8,371.562	155,749.91	2,484.53	1,242.69	156,992.60
Meagher	154.227	2,869.34	11.75	5.91	2,875.25
Missoula	3,406.971	63,385.48	126.24	63.27	63,448.75
Park	663.109	12,336.85	101.72	50.98	12,387.83
Ravalli	67.596	1,257.58	5.35	2.70	1,260.28
Silverbow	3,935.569	73,219.83	643.30	321.91	73,541.74
Teton	39.403	733.07	2.83	1.42	734.49
Total Montana	84,263.148	1,567,685.75	27,956.90	13,982.35	1,581,668.10
OTHER SOURCES.					
Idaho	15,069.776	280,367.80	2,869.54	1,435.41	281,803.21
Washington	2,764.223	51,427.37	662.25	331.34	51,758.71
Oregon	2,089.480	38,874.03	455.39	227.78	39,101.81
Wyoming	5.683	105.73	.38	.19	105.92
Alaska	155.006	2,883.83	24.58	12.30	2,896.13
Northwest Territory	8,843.932	164,538.22	2,324.71	1,162.63	165,700 85
British Columbia	5,861.588	109,052.80	1,798.30	899.15	109,951.95
Jewelry	65.381	1,216.37	13.90	6.97	1,223.34
Redeposits	289.925	5,393.95	108.02	54.01	5,447.96
Total	35,144.994	653,860.10	8,257.07	4,129.78	657,989.88
Grand total	119,408.142	2,221,545.85	36,213.97	18,112.13	2,239,657.98

PRODUCTION OF GOLD AND SILVER IN MONTANA DURING THE CALENDAR YEAR 1898.

Counties, etc.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Beaverhead	9,591.674	$198,277.50	368,263.92	$476,139.21	$674,416.71
Broadwater	10,552.021	218,129.63	284,168.06	367,409.21	585,538.84
Carbon	52.940	1,094.37	3.45	4.46	1,098.83
Cascade	1,008.563	20,848.85	430,397.96	556,474.13	577,322.98
Custer	62.206	1,285.91	10.33	13.36	1,299.27
Deerlodge	23,504.896	485,889.33	10,732.13	13,875.88	499,765.21
Fergus	6,201.608	128,198.61	271.35	350 84	128,549.45
Flathead	1,522.716	31,477.33	75,239.89	97,279.86	128,757.19
Granite	8,514.411	176,008.50	1,003,416.91	1,297,347.11	1,473,355.61
Jefferson	10,943.572	226,223.71	1,036,889.28	1,340,624.52	1,566,848.23
Lewis and Clarke	43,899.555	907,484.34	166,956.31	215,862.70	1,123,347.04
Madison	47,240.616	976,550.20	111,294.95	143,896.50	1,120,446.70
Meagher	153.804	3,179.41	160,012.19	206,884.45	210,063.86
Missoula	3,066.274	63,385.51	3,122.34	4,036.96	67,422.47
Park	641.618	13,263.42	103.55	133.88	13,397.30
Ravalli	60.836	1,257.59	4.81	6.22	1,263.81
Silverbow	55,343.589	1,144,053.52	8,996,555.01	11,631,909.51	12,775,963.03
Teton	35.463	733.09	2.55	3.30	736.39
Returns from custom smelters, mints, and assay offices impossible to classify by counties	31,471.425	650,572.09	2,171,216.99	2,807,230.07	3,457,802.16
Total	253,867.787	5,247,912.91	14,818,661.98	19,159,482.17	24,407,395.08

BULLION OF MONTANA PRODUCTION DEPOSITED AT THE UNITED STATES ASSAY OFFICE, HELENA, MONT., DURING THE CALENDAR YEAR 1898.

Origin.	Gold.		Silver.		Total value.
	Standard ounces.	Value.	Standard ounces.	Commercial value.	
Placer gold	23,662.452	$440,231.21	3,221.33	$1,612.80	$441,844.01
Mill bullion	60,600.696	1,127,454.54	24,735.57	12,369.55	1,139,824.09
Total	84,263.148	1,567,685.75	27,956.90	13,982.35	1,581,668.10

BULLION OF MONTANA PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND ASSAY OFFICES DURING THE CALENDAR YEAR 1898.

Institutions.	Gold.		Silver.		Total value.
	Standard ounces.	Value.	Standard ounces.	Coining value.	
MINTS.					
Denver	18.431	$342.90	1.44	$1.68	$344.58
San Francisco	32.862	611.39	7.01	8.16	619.55
Philadelphia	1,077.212	20,041.15	2,956.33	3,440.09	23,481.24
ASSAY OFFICES.					
Boise	8,940.119	166,327.79	560.27	651.95	166,979.74
New York	36,657.522	682,000.41	1,653,796.64	1,924,417.91	2,606,418.32
Seattle	11.125	206.98	.67	.78	207.76
Helena	84,263.148	1,567,685.75	27,956.90	32,531.66	1,600,217.41
Total	131,000.419	2,437,216.37	1,685,279.26	1,961,052.23	4,398,268.60

PRODUCTION OF GOLD AND SILVER IN MONTANA (ORIGIN DETAILED) DURING THE CALENDAR YEAR 1898.

Origin.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Placer bullion	31,662.452	$654,520.97	4,021.33	$5,199.24	$659,710.21
Mill bullion	80,590.965	1,665,963.10	1,028,619.10	1,329,931.77	2,995,894.87
Cyanide mill bullion	19,235.180	397,626.46	78,006.95	100,857.47	498,493.93
In copper ores	51,408.020	1,062,698.09	9,495,911.71	12,277,542.46	13,340,240.55
In lead ores	8,369.027	173,003.14	2,763,991.44	3,573,645.50	3,746,648.64
In dry ores and concentrates classed as smelting ores	62,602.143	1,294,101.15	1,448,111.45	1,872,305.73	3,166,406.88
Total	253,867.787	5,247,912.91	14,818,661.98	19,159,482.17	24,407,395.08

ORIGIN BY PERCENTAGES OF THE PRODUCTION OF GOLD AND SILVER IN MONTANA DURING THE CALENDAR YEAR 1898.

Origin.	Gold.	Silver.
	Per cent.	*Per cent.*
Placer bullion	12.60	0.03
Mill bullion	31.90	6.93
Cyanide mill bullion	7.60	.52
Copper ores	20.35	64.13
Lead ores	3.35	18.66
Dry ores	24.20	9.73
Total	100.00	100.00

PRODUCTION OF COPPER AND LEAD IN MONTANA DURING THE CALENDAR YEAR 1898.

Summary by counties.	Copper.	Lead.
	Fine pounds.	*Fine pounds.*
Beaverhead	121,039	1,582,450
Broadwater		1,600,000
Cascade		3,729,158
Deerlodge	116,604	
Flathead		1,000,000
Granite	55,000	
Jefferson	17,954	1,340,715
Madison	20,680	270,477
Meagher		6,000,000
Missoula		122,581
Silverbow	216,648,077	
Custom smelter in addition to the above, not possible to distribute to counties		5,758,211
Total	216,979,354	21,403,592

DISPOSITION OF GOLD AND SILVER OF MONTANA PRODUCTION DURING THE CALENDAR YEAR 1898.

Disposition.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Deposited at United States mints and assay offices	117,900.378	$2,437,216.37	1,516,751.34	$1,961,052.23	$4,398,268.60
Shipped to custom smelters and refineries by producers	135,967.409	2,810,696.54	13,301,910.64	17,198,429.94	20,009,126.48
Total	253,867.787	5,247,912.91	14,818,661.98	19,159,482.17	24,407,395.08

TOTAL PRODUCTION OF PRECIOUS METALS IN MONTANA DURING THE CALENDAR YEAR 1898.

Description.	Quantity.	Value.
Gold, fine ounces	253,867.787	$5,247,912.91
Silver, fine ounces (coinage rate)	14,818,661.98	19,159,482.17
Copper, fine pounds (at $12.03 per cwt.)	216,979,354	26,102,616.29
Lead, fine pounds (at $3.78 per cwt.)	21,403,592	809,055.78
Total value		51,319,067.15

VII.

NEVADA.

By R. K. Colcord,

Superintendent of the United States Mint, Carson City, Nev.

Nevada's production of gold and silver for the calendar year 1898 was—

Gold	$3, 112, 797
Silver (coining value)	1, 266, 680
Total	4, 379, 477

Compared with corresponding values for the year 1897, these figures show an increase in gold of $32, and a falling off in silver of $368,254, a net decrease of $368,222.

The several statistical tables submitted have been compiled from the reports received from mining companies, United States mints and assay officers, and the reports of the county auditors to the State comptroller. In the compilation of these tables all doubtful and speculative information has been eliminated and especial care exercised to avoid errors and possibility of duplication. The totals have been carefully checked and verified, and the results as given are conservative, correct, and reliable.

Product of Nevada for the Year 1898.

County.	Gold.	Silver (coining value).	Total.
Churchill	$1, 500	$4, 000	$5, 500
Douglas	1, 800	120	1, 920
Esmeralda	108, 099	3, 040	111, 139
Elko	262, 732	80, 466	343 198
Eureka	74, 097	520, 563	594, 660
Humboldt	85, 197	15, 926	101, 123
Lander	61, 075	66, 039	127, 114
Lincoln	2, 031, 597	260. 341	2, 291. 938
Lyon	41, 073	6, 731	47, 804
Nye	59, 670	2, 300	61, 970
Storey[1]	186, 447	250, 849	437, 296
Washoe	37, 300	960	38, 260
White Pine	162, 210	55, 345	217, 555
Total	3, 112, 797	1, 266, 680	4, 379, 477

[1] $75,982 gold and $141,502 silver, product of tailings, included in total.

Abstract Statement from the Quarterly Assessment Rolls of the Proceeds of the Mines of Nevada.

THREE QUARTERS ENDED SEPTEMBER 30, 1898.

County.	Quantity extracted.		Gross yield or value.	Actual cost of—		Actual cost of reduction.		Total cost.
	Tons.	Pounds.		Extracting.	Transportation.	Free milling.	Freiberg process.	
Elko	19,362	500	$137,035.91	$71,337.20	$4,347.05	....	$56,543.50	$132,227.75
Eureka	10,414	508	218,752.61	127,963.03	8,191.23	....	66,861.08	203,015.34
Humboldt	394	100	5,666.73	7,270.92	76.50	$19.90	....	7,367.32
Lincoln	82,519	368	1,401.838.14	319,888.24	49,891.43	899,231.19	....	1,269,010.86
Lyon	185	26	1,433.65	786.65	92.50	697.50	....	1,576.65
Storey	3,317	498	82,490.82	114,013.47	2,319.11	22,458.08	....	138,790.66
White Pine	12,535	490	90,205.49	86,882.62	12,866.00	28,647.42	....	128,396.04
Total	128,726	2,490	1,937,423.35	728,142.13	77,783.82	951,054.09	123,404.58	1,880,384.62

QUARTER ENDED DECEMBER 31, 1898 (ESTIMATED).

County.	Gross yield or value.	Total cost.
Elko	$61,142.96	$61,512.71
Eureka	80,730.04	57,681.24
Humboldt	5,640.00	7,367.36
Lincoln	490,094.54	430,309.64
Lyon	1,433.00	1,579.65
Storey	41,245.41	69,395.33
White Pine	51,005.32	62,360.96
Total	731,291.27	690,206.89

SUMMARY FOR THE YEAR 1898.

[Reported to State comptroller by county auditors. Silver computed at market value.]

Items.	Three quarters ended September 30, 1898.[1]		Quarter ended December 31, 1898 (estimated).		Total product.
	Ores.	Tailings.	Ores.	Tailings.	
Gross yield or value	$1,937,423.35	$56,485.74	$731,291.27	$26,870.46	$2,752,070.82
Actual cost of—					
Extracting	728,142.13	651.75	....	....	....
Transportation	77,783.82	9,201.01	....	....	....
Reduction (free milling)	951,054.09	43,933.91	....	....	....
Reduction (Freiberg process)	123,404.58	....	....	....	....
Total cost	1,880,384.62	53,786.67	690,206.89	22,698.72	2,647,076.90

[1] Quantity extracted for three quarters ended September 30, 1898: Ores, 128,727 tons and 490 pounds; tailings, 22,109 tons; total, 150,836 tons and 490 pounds.

RECAPITULATION.

[Silver computed at coining value.]

Source of production.	Value.
Product for three quarters ended September 30, 1898, as reported by county auditors to State comptroller	$2,474,659.29
Product for quarter ended December 31, 1898 (estimated)	918,411.86
Estimated product for the year not reported by county auditors to State comptroller	986,405.85
Total product	4,379,477.00

VIII.

NEW MEXICO.

By CORBETT and WYMAN,

Deming, N. Mex.

The value of gold, silver, lead, and copper produced in the Territory of New Mexico during the year 1898 was $1,981,012, being an increase over the production of 1897 of $569,753.

At Pinos Altos there has been but little done during the year except developing.

At Hillsboro there has been considerable activity. Many of the mines are worked on the leasing system.

At Kingston, which was formerly a big silver-producing camp, but little has been done, the mines being mostly shut down since the fall in price of silver.

At Cochita there is one large mill in successful operation, which was put in during the past year.

White Oaks has done little except development work. A cyanide plant is working on tailings from milled ores with good results.

In Colfax County a good deal of development work is being done and several properties have changed ownership.

Considerable copper mining is being done at Santa Rita. Much of the copper is in a native state.

The value of gold produced from placer mines in New Mexico during the year 1898 was about $63,900; from cyanide works, about $19,000. The balance, $728,940, was derived from quartz treated in stamp mills and smelters.

The amount of silver derived from lead ores was about 106,697 ounces. There has been no gold or silver of any amount produced from copper ores.

Following is a statement of the output of metals in New Mexico. The values are estimated upon the average of New York metal quotations for the year:

STATEMENT OF THE OUTPUT OF METALS, BY COUNTIES, IN NEW MEXICO, 1898.

County.	Gold.	Silver (commercial value).	Lead (commercial value).	Copper (commercial value).	Total.
Bernalillo	$53, 760	$18, 147			$71, 907
Colfax	97, 900	5, 700			103, 600
Dona Ana	4, 350	6, 570	$4, 725		15, 645
Grant	86, 240	97, 398	358, 864	$393, 728	936, 230
Lincoln	49, 750	309			50, 059
Sierra	357, 220	51, 714		28, 080	437, 014
Santa Fe	58, 800	2, 500			61, 300
Socorro	103, 820	105, 617	95, 820		305, 257
Total	811, 840	287, 955	459, 409	421, 808	1, 981, 012

IX.

OREGON.

By Eugene B. Braden,
Assayer in charge, United States assay office, Helena, Mont.

The precious-metal output of Oregon during 1898 was 58,856.381 fine ounces of gold, valued at $1,216,669.38, and 128,326.17 fine ounces of silver, of a coining value of $165,916.66—a total of $1,382,586.04. The production of lead and copper in this State during the year was unimportant, having been about 40,000 pounds and 30,000 pounds, respectively. The value of the gold and silver that was produced in the preceding year of 1897 was $1,354,593.43 and $109,642.58, respectively. The decrease in gold during 1898 was $137,924.05, while the increase in silver was $56,274.08. The net decrease of the combined production therefore amounted to $81,649.97.

The counties of Baker, Union, and Grant constitute what is known as the mining region of northeastern Oregon and comprise that territory centered about the Blue Mountains. The other region of the State is known as southern Oregon and lies north of the Siskiyou Mountains, along the coast range between the Cascades and the Pacific Ocean.

Considerable activity characterized the mining industry in each of these regions. In the majority of the districts in each region, because of the opening and equipping of new properties, this activity was more than proportional to that indicated by the figures of production in each.

There are a number of reasons why Oregon showed a decrease in 1898. In the northeastern section some of the experimental milling plants of the development stage were idle for different periods pending the installation of permanent machinery of increased capacity for saving values. Other properties were idle because of a change in management, made necessary through sale and through the termination and renewal of leases. While this section has long been producing gold and silver from quartz, the methods employed were not altogether modern, and the temporary closing down of large properties while erecting new milling plants is rather an indication of the inauguration of an era of permanence than a scarcity of profitable ore or an intention to cease operations.

The situation in southern Oregon is most encouraging. While placer mining has long been an important feature of this region, the prospecting for quartz carried on in past years has been rewarded with gratifying discoveries. Considerable money in consequence has been invested from time to time in machinery for ore crushing and for the separation of the precious metals, but without material returns.

The year 1898, however, witnessed the profitable employment, for the first time, of both stamp mills and the cyanide process on the ores of this region. The outlook for the future production of mill bullion in southern Oregon is encouraging.

The decreased yield of gold in Oregon in 1898 has also a partial explanation in the dry season of 1898. Because of this the yield of placer gold was materially curtailed. The effect of the drought was felt most in southern Oregon, where the more important placer mining of the State is carried on, and which lies immediately contiguous to northern California. In the latter State great loss was occasioned because of the very short working season effected by the great scarcity of water.

As the silver that was produced in Oregon during 1898 occurred in association with gold, the entire yield is due to the mining of ores for the last-named metal. The heaviest output came from Union County. This was due to the large tonnage from the Cornucopia mines, the ores of which carried a considerable proportion of silver to the ton.

NORTHEASTERN OREGON.

BAKER COUNTY.

The output of gold and silver from this county during the years 1897 and 1898 was as follows:

Metals.	1897.		1898.		Decrease.
	Fine ounces.	Value.	Fine ounces.	Value.	
Gold	38,542.331	$796,740.69	25,442.586	$525,944.93	$270,795.76
Silver	38,740.05	50,088.14	33,018.16	42,690.14	7,398.00
Total		846,828.83		568,635.07	278,193.76

The decrease of more than a quarter million of dollars in gold arose from the idleness during the greater part of the year of the Eureka and Excelsior mines at Bourne, and of the Virtue mine near Baker City. Others of the mines in the county show diminished outputs. The returns of gold from placers received from the Baker County producers generally show a decrease for 1898 from those made by the same parties in 1897.

The mining districts in Baker County are at Bourne, Clifford, Baker City, Rye Valley, and Connor Creek.

The most important camp is that at Bourne, situated on the eastern slope of the Blue Mountains, in the northwestern part of Baker County. Here are located the mines of the Eureka and Excelsior, the eastern Oregon, the Golconda, and other companies.

Clifford is another camp from which a large production originates, because of the Bonanza mine located at this point. Among other properties at Clifford, some idle and some active, in 1898, were the Banzett, Don Juan, Phœnix, Pyx, and Lucky Boy mines.

The district tributary to Baker City and including the central portion of the county contains a number of quartz and placer properties, from both of which gold in considerable quantities was taken in 1898. The region about Rye Valley yielded both quartz and placer gold. Connor Creek, Chicken Creek, and other placers produced gold from sluicing, washing, etc.

GRANT COUNTY.

The western slope of the Blue Mountains, which lies in Grant County, was the scene of some of the most important mining operations in Oregon during 1898.

A comparison of the yield in 1897 and 1898 is shown below:

Metals.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Value.	
Gold	4,207.113	$86,968.74	6,940.000	$143,462.53	$56,493.79
Silver	3,774.20	4,879.77	25,345.00	32,769.29	27,889.52
Total		91,848.51		176,231.82	84,383.31

Both quartz and placer mining are centered about Granite, Susanville, and Canyon City. Quartz mines of promise are also located near Prairie City.

The Red Boy mine is at Granite. This was the largest producer of gold in Grant County, although its production was not continuous throughout the year because of the erection of a new and modern 20-stamp mill to replace the small Crawford mill formerly in use. This idleness extended through some months. The product from the Red Boy is a high grade gold ore, of which a large quantity has been developed in the mine. The Red Boy mine is the property of Tabor & Godfrey, and has attracted much attention from mining men. With the small Crawford mill, whose place is now taken by the new stamp mill, enough profit has been realized to block out the free-milling ore in sight in the mine, pay for the new mill, and other improvements. The future is especially bright for this mine, and it is believed Grant County will show a large yield of gold hereafter.

The Great Northern mine at Canyon City was a new discovery in 1898, and attracted considerable attention because of the exceedingly rich ore that it produced.

The Badger Gold Mining and Milling Company, owning properties at Susanville, were active and report a considerable production of both gold and silver. The Present Need mine at Prairie City was also a producer in 1898.

Other properties in Grant County on which work has been done are the Poorman and adjoining claims at Susanville, the Magnolia, Bellevue, Oro Fino, and Hunchback mines at Granite, and the High Tariff at Prairie City.

UNION COUNTY.

The output of gold and silver by the mines of Union County show a large increase over the amounts produced in 1897. Following is a comparison of the product for 1897 and 1898:

Metals.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Value.	
Gold	10,240.925	$211,698.71	14,141.171	$292,323.97	$80,625.26
Silver	27,889.07	36,071.53	52,451.28	67,815.80	31,744.27
Total		247,770.24		360,139.77	112,369.53

The largest producer in this county in 1898 was the Cornucopia mines at Cornucopia. This product is a high grade ore carrying both gold and silver, which is hauled 68 miles by wagons to Baker City, from which point it is shipped to the smelters. Other Union County producers were the Sanger, Eagle, and Crystal Palace mining companies. The placers at Camp Carson also yielded considerable gold.

SOUTHERN OREGON.

JOSEPHINE COUNTY.

The yield of gold and silver from this county shows the following variations for the years 1897 and 1898:

Metals.	1897.		1898.		Increase and decrease.
	Fine ounces.	Value.	Fine ounces.	Value.	
Gold	6,390.482	$132,102.99	7,093.196	$146,629.37	*a* $14,526.38
Silver	3,539.53	4,576.36	3,047.90	3,940.72	*b* 635.64
Total		136,679.35		150,570.09	13,890.74

a Increase. *b* Decrease.

In former years the product from Josephine County was placer gold, but in 1898 a number of quartz mines came forward with a considerable amount of gold. Had it not been for these the output of gold in 1898 would have been very materially decreased, as the season for placer mining was a very short one, because of the extreme scarcity of water.

Placer mining has long been regularly and profitably followed in this county. Because of this many facilities, consisting of ditches, sluices, pumps, and other machinery for working the gravel, exist in each of the districts of Josephine County. The principal ones are at Wolf Creek, Galice Creek, Grove Creek, Dry Diggings, Mount Reuben, Waldo, Althouse, Jump-off-Joe, Williams, Kerby, Illinois, and Sucker Creek.

The leading quartz mines in the county are those belonging to the Gold Bug Consolidated Company and the Greenback, Requital, Jewett, and Golden Wedge mines. The Gold Bug Company's property is equipped with a five-stamp mill, the returns from which are very gratifying to the owners. The ores from the Greenback mine were handled in an arrastre. The Requital mine is equipped with a five-stamp mill, which was closed down after running some time because of the property becoming involved in litigation. A mill was also run some time on ores from the Jewett mine, while those from the Golden Wedge quartz mine were handled in an arrastre. The Baby quartz mine shipped some of its ores to a smelter. These properties and a number of others, from which no production was taken in 1898, were being explored and ore developed. The advance made in quartz mining in Josephine County during 1898 justifies the belief that this branch of gold mining will assume greater importance in the future.

In Douglas and Jackson counties the yield of gold and silver was about the same in 1898 as in 1897. However, quartz mining in Jackson County made up what would otherwise have been a deficiency, due to the placer mining, which had been exclusively carried on. In this latter county the Ashland Mining Company acquired title to the Ashland and Mattern mines, from which fair values were obtained by milling the ores. The ore from the Shorty Hope mine was shipped to the smelters for sale. The McMurtry Mining Company also milled some ore. The Oregon Gold Extraction Company, at Ashland, treated their milling ores by the cyanide process.

The gold won from placers in Jackson County was much less in 1898 than in the previous year. This was due to the short season and to the scarcity of water. A dredge, working near Tolo, took out some gold from placer ground.

Some gold was secured from the Bohemia mining district of Lane County, but because of those operating there no credit is shown for this. The amount, however, was small. The gold from Coos County originated in placers on the ocean beach. From these some 50 ounces of platinum were also secured.

The following table gives additional information in regard to the Oregon output for 1898:

Production of Gold and Silver in Oregon during the Calendar Year 1898.

Summary by counties.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Baker	25,442.586	$525,944.93	33,018.16	$42,690.14	$568,635.07
Grant	6,940.000	143,462.53	25,345.00	32,769 29	176,231.82
Union	14,141.171	292,323.97	52,451.28	67,815.80	360,139.77
Josephine	7,093.196	146,629.37	3,047.90	3,940.72	150,570.09
Jackson	1,418.680	29,326.72	1,358.83	1,756.87	31,083.59
Douglas	320.500	6,625.32	60.00	77.58	6,702.90
Coos	101.250	2,093.02	....	....	2,093.02
Returns from custom smelters, mints, and assay offices, impossible to classify by counties	3,398.998	70,263.52	13,045.00	16,866.26	87,129.78
Total	58,856.381	1,216,669.38	128,326.17	165,916.66	1,382,586.04

Bullion of Oregon Production Deposited at the United States Mints and Assay Offices during the Calendar Year 1898.

Institutions.	Gold.		Silver.		Total value.
	Standard ounces.	Value	Standard ounces.	Commercial value.	
Assay offices:					
Helena	2 089.480	$38,874.03	455.39	$529.91	$39,403.94
New York	38.412	714.64	2.84	3.30	717.94
Boise	22,000.838	409,317.92	6,388.66	7,434.08	416,752.00
Seattle	98.541	1,833.32	12.06	14.03	1,847.35
Mints:					
Denver	172.948	3,217.64	20.11	23.40	3,241.04
Philadelphia	18.289	340.26	1.71	1.99	342.25
San Francisco	7,869.295	146,405.49	1,644.81	1,913.95	148,319.44
Total	32,287.803	600,703.30	8,525.58	9,920.66	610,623.96

Disposition of Gold and Silver of Oregon Production during the Calendar Year 1898.

Disposition.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Deposited at United States mints and assay offices	29,059.023	$600,703.30	7,673.03	$9,920.66	$610,623.96
Shipped to custom smelters and refineries by producers	29,797.358	615,966.08	120,653.14	155,996.00	771,962.08
Total	58,856.381	1,216,669.38	128,326.17	165,916.66	1,382,586.04

PRODUCTION OF GOLD AND SILVER IN OREGON (ORIGIN DETAILED) DURING THE CALENDAR YEAR 1898.

Origin.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Placer bullion	14, 289. 050	$295, 380. 88	3, 254. 03	$4, 207. 23	$299, 588. 11
Mill bullion	24, 769. 974	512, 040. 81	24, 419. 02	31, 572. 06	543, 612. 87
In dry ores and concentrates classed as smelting ores	19, 797. 357	409, 247. 69	100, 653. 12	130, 137. 37	539, 385. 06
Total	58, 856. 381	1, 216, 669. 38	128, 326. 17	165, 916. 66	1, 382, 586. 04

TOTAL PRODUCTION OF PRECIOUS METALS IN OREGON DURING THE CALENDAR YEAR 1898.

Description.	Fine ounces.	Value.
Gold	58, 856. 381	$1, 216, 669. 38
Silver	128, 326. 17	165, 916. 66
Total		1, 382, 586. 04

X.

SOUTH APPALACHIAN STATES.

By W. S. Clanton,

Assayer in charge of the United States assay office at Charlotte, N. C.

The result of the precious metals mined in the South Appalachian States in 1898 is shown in Table 1, expressed both in fine ounces and coining values. The increased yield is, in round numbers, $52,000.00, or nearly 18 per cent. A study of these figures shows some surprises. The yield of North Carolina was more than doubled; the gain of South Carolina was very considerable, and the decrease of Georgia was equally notable. The reasons for these changes are stated in the appropriate places of the context.

Table 1.—Statistics of Production of Gold and Silver in the South Appalachian States in 1898.

States.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Alabama	318.195	63.39	381.585	$6,577.67	$81.94	$6,659.61
Georgia	6,481.742	492.98	6,974.722	133,989.50	637.38	134,626.88
Maryland	43.076	1.48	44.556	890.47	1.92	892.39
North Carolina	4,351.829	1,509.00	5,860.829	89,960.43	1,951.03	91,911.46
South Carolina	5,098.641	325.68	5,424.321	105,398.27	421.09	105,819.36
Tennessee	7.114	.74	7.854	147.07	.95	148.02
Virginia	245.483	14.68	260.163	5,074.58	18.98	5,093.56
Total	16,546.080	2,407.95	18,954.030	342,037.99	3,113.29	345,151.28

A careful analysis of the deposits at the various official institutions of the United States (which amount to a little more than 95 per cent of the total production of this section), together with the small unidentified production, shows the following approximate sources:

Table 2.—Immediate Sources of the Precious Metals Obtained in 1898.

[Coining values.]

States.	Placers.		Mills.		Works.		River mining.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
Alabama	$3,415.22	$37.38	$2,742.27	$39.14				
Georgia	34,169.67	213.96	75,334.12	404.09	$14,566.92		$7,166.74	$11.66
Maryland	590.40	1.55						
North Carolina	23,284.92	251.18	41,105.66	623.56	22,180.07			
South Carolina	1,853.15	23.05	59,421.53	387.62	43,346.18			
Tennessee	97.06	.72						
Virginia	1,755.59	8.36	1,774.86	7.76				
Total	65,166.01	536.20	180,378.44	1,462.17	80,093.17		7,166.74	11.66

States.	Shipping ores.		Unknown.		Total.		Grand total.
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	
Alabama			$420.18	$5.42	$6,577.67	$81.94	$6,659.61
Georgia			2,752.05	7.67	133,989.50	637.38	134,626.88
Maryland			300.07	.37	890.47	1.92	892.39
North Carolina	$125.02	$1,047.27	3,264.76	29.02	89,960.43	1,951.03	91,911.46
South Carolina			777.41	10.42	105,398.27	421.09	105,819.36
Tennessee			50.01	.23	147.07	.95	148.02
Virginia			1,544.13	2.86	5,074.58	18.98	5,093.56
Total	125.02	1,047.27	9,108.61	55.99	342,037.99	3,113.29	345,151.28

An examination of these tables shows that the metallurgical progress of the section is satisfactory, since 23.2 per cent of the amount mined was obtained from the various refinery works, for the most part chlorination works. The Blacksburg, S. C., Sulphuric Acid Works, which were operated in a desultory manner for several years, have been discontinued. New and thoroughly equipped chlorination works have been installed at the Fritz-Honeycutt mine at Gold Hill, Rowan County, N. C. Otherwise, there have been no changes in the number or character of the metallurgical works. Little progress was made in 1898 in cyaniding, and little attention was given to new processes. In the main, this mining section is in a healthy condition, which bids fair to be maintained substantially in 1899.

MARYLAND.

The production of Maryland is shown in Table 3. It was obtained mostly from placers in Montgomery County. No systematic work is projected for 1899.

The more important mines were examined in May, 1899. Except for placer work, and some test runs of ore by new methods or new machinery, no evidence of activity was seen and no systematic or important work is projected for the present.

TABLE 3.—MARYLAND.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Montgomery	34.217	1.01	35.227	$707.33	$1.32	$708.65
Unknown	8.859	.47	9.329	183.14	.60	183.74
Total	43.076	1.48	44.556	890.47	1.92	892.39

VIRGINIA.

The exhibit for Virginia is shown in Table 4. The work in 1898 shows nothing of importance, nor is any change indicated for 1899. The copper belt of Person County, N. C., extends northward into Virginia, and this extension is now under examination with a fair prospect of the discovery of good shipping ores containing a little gold and silver, which will probably inure to the credit of the State.

TABLE 4.—VIRGINIA.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Fauquier	11.645	1.26	12.905	$240.72	$1.63	$242.35
Fluvanna	6.752	.61	7.362	139.57	.79	140.36
Goochland	29.004	2.43	31.434	599.57	3.14	602.71
Louisa	28.219	.88	29.099	583.33	1.15	584.48
Stafford	64.800	2.58	67.380	1,339.54	3.33	1,342.87
Unknown	105.063	6.92	111.983	2,171.85	8.94	2,180.79
Total	245.483	14.68	260.163	5,074.58	18.98	5,093.56

NORTH CAROLINA.

The yield is shown in Table 5. The changes in 1898, which allowed the great increase in production of $53,000, in round numbers, were due to the enlarged work in Davidson and Person (and Granville) counties in the output of "shipping ores," and in Guilford and Rowan counties.

The monazite industry of the placer sections of North Carolina has practically ceased. The low price of the mineral, brought about by the great abundance and cheapness of the South American production, has made the work unremunerative. Some changes in the mode of marketing this mineral have operated to the detriment of the small mining operators. The decline in this industry has permitted more attention to be given to the gold-mining industry, and the present rate of production is likely to be maintained.

The copper belt in Person and Granville counties has received considerable attention, and will apparently receive still more in 1899. Four mines have been opened and a considerable amount of high-grade copper sulphurets extracted and shipped containing probably not less than 20 per cent copper, on the average, and from $2.72 to $7.65 per ton in gold and silver. The greater activity is centered about Blue Wing, in Person County; other points are soon to be examined and a large amount of machinery is now installed or is on the point of installation.

The Lindsay mine, in Guilford County, is now a producer, and the Snipes mine, in Chatham, is likely to be so shortly. Some recent favorable investigations have been conducted in McDowell and Burke counties. A very marked activity is shown at and near Gold Hill, Rowan County, where the success of the Fritz-Honeycutt mine has stimulated the reopening of four other properties. This mine was a steady producer in 1898. It is operated by two deep shafts, 185 and 160 feet deep, respectively, and levels have been run of an extreme length of more than 600 feet. It is equipped with 60 stamps and a full chlorinating plant.

The Standard property, containing several veins of diverse character, carrying argentiferous (as well as auriferous) blends and galenites, and the old Union mine, with a very wide vein of auriferous and argentiferous copper ores, are being actively prospected, and the same party has recently proposed plans for reopening the old and well-known Randolph vein, etc.

A strong English company has also opened again the McMakin vein to the depth of 150 feet and appears confident that everything promises well for a successful result.

Other properties in this well-known belt are under consideration and a long continuance of prosperity of these, or even of one of them, will stimulate work in many of the long-idle mines of this famous belt.

The Silver Hill mine, in Davidson County, is undergoing examination with reference to the production of argentiferous lead ores.

The general situation in other parts of North Carolina remains unchanged.

The Union Copper mine is now, July, 1899, entered by seven shafts and a body of copper ore opened out, of fair grade for smelting; at the present writing, a little ore is shipped to smelting centers, as the local works for treatment are not yet advanced so far as the erection of a smelter. The work, thus far, is rather exploratory in character.

In Cherokee County, the Irwindale Mining Company is operating hydraulically, near Marble; 20 hands are employed and the prospects are good.

The Parkdale Mining Company, employing 10 hands, is at work between Marble and Andrews.

TABLE 5.—NORTH CAROLINA.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Burke	577.883	102.09	679.973	$11,945.90	$131.99	$12,077.89
Cabarrus	51.305	4.86	56.165	1,060.58	6.28	1,066.86
Caldwell	16.269	3.67	19.939	336.31	4.74	341.05
Catawba	11.174	1.12	12.294	231.00	1.44	232.44
Cherokee	12.097	1.35	13.447	250.06	1.75	251.81
Cleveland	5.589	.97	6.559	115.54	1.26	116.80
Davidson	3.818	270.44	274.258	78.92	349.67	428.59
Franklin	64.559	3.89	68.449	1,334.57	5.03	1,339.60
Gaston	39.281	5.54	44.821	812.02	7.17	819.19
Guilford	159.888	89.85	249.738	3,305.19	116.17	3,421.36
Iredell	7.124	....	7.124	147.27	....	147.27
Lincoln	2.993	.09	3.083	61.88	.12	62.00
McDowell	177.055	33.55	210.605	3,660.05	43.38	3,703.43
Mecklenburg	80.194	22.05	102.244	1,657.77	28.51	1,686.28
Montgomery	94.248	14.49	108.738	1,948.28	18.73	1,967.01
Moore	50.777	11.92	62.697	1,049.66	15.42	1,065.08
Nash	11.889	2.87	14.759	245.77	3.71	249.48
Person	4.838	540.00	544.838	100.02	698.18	798.20
Polk	52.948	7.40	60.348	1,094.53	9.56	1,104.09
Randolph	61.494	16.19	77.684	1,271.20	20.94	1,292.14
Rowan	2,195.166	243.73	2,438.896	45,378.12	315.12	45,693.24
Rutherford	96.636	15.66	112.296	1,997.66	20.25	2,017.91
Stanley	226.445	23.35	249.795	4,681.04	30.18	4,711.22
Union	73.373	19.10	92.473	1,516.76	24.69	1,541.45
Warren	32.572	27.61	60.182	673.32	35.70	709.02
Unknown	242.214	47.21	289.424	5,007.01	61.04	5,068.05
Total	4,351.829	1,509.00	5,860.829	89,960.43	1,951.03	91,911.46

SOUTH CAROLINA.

The increased production, as shown in Table No. 6, is due almost entirely to Lancaster County; the Haile and Blackmon mines, in Lancaster County, have both enlarged their operations in amount and quite as notably have heightened the efficiency of their plants. The ore reserves in both mines are amply large. At the Haile mine there is probably enough reserve "in sight" for two or three years' work. The Wilfley concentrator has recently been introduced. Both mines have been often described, especially the Haile, and nothing of importance can be added here.

The mining situation in this State, judging from present indications, is not likely to change materially in 1899.

TABLE 6.—SOUTH CAROLINA.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Abbeville	100.515	37.69	138.205	$2,077.82	$48.73	$2,126.55
Chesterfield	60.244	3.33	63.574	1,245.36	4.31	1,249.67
Lancaster	4,807.123	255.99	5,063.113	99,372.06	330.98	99,703.04
Pickens	7.557	1.29	8.847	156.22	1.66	157.88
Spartanburg	93.256	16.29	109.546	1,927.78	21.06	1,948.84
York	1.463	1.88	3.343	30.23	2.43	32.66
Unknown	28.483	9.21	37.693	588.80	11.92	600.72
Total	5,098.641	325.68	5,424.321	105,398.27	421.09	105,819.36

GEORGIA.

The production is tabulated in Table 7. The general condition of work at the beginning of the year indicated a large increase, and for some months there was a considerably greater output, but the result of the entire year's work was quite the reverse, and the production fell off $20,444.41, or nearly 13 per cent.

The only county which showed a marked decrease was Haralson, the Royal mine in this county, which had been previously worked largely, was idle eight months owing to litigation.

The speculative work of the State was without results, as was to have been expected, and I have been unable to learn of any new enterprises of importance lately undertaken or projected.

The prominent mining counties are White, Lumpkin, Hall, Cherokee, Haralson, and McDuffie. The river mining, mostly on the Chestatee, showed some increase, amounting to $7,178.40. The condition of these counties remains nearly the same as at the close of 1897, and shows no appearance of material change, except in Cherokee, in which the old Cherokee mine, with its recently erected machinery and probable additions, is likely to increase the product, as it will soon be in a condition to treat all its ores and especially its concentrates.

The work in Lumpkin County appears to have reached settled conditions, and the same statement may be made of most of the other large mining centers. I do not deem it necessary to go further into the details of mining in this State, as it has been so often described.

TABLE 7.—GEORGIA.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Carroll	205.653	10.58	216.233	$4,251.22	$13.67	$4,264.89
Cherokee	2,357.119	37.53	2,394.649	48,725.97	48.52	48,774.49
Cobb	26.760	1.08	27.840	553.17	1.40	554.57
Dawson	170.720	9.16	179.880	3,529.10	11.85	3,540.95
Dekalb	9.679	.31	9.989	200.09	.40	200.49
Forsyth	46.984	.47	47.454	971.24	.60	971.84
Gilmer	3.511	.11	3.621	72.57	.14	72.71
Hall	195.798	59.63	255.428	4,047.50	77.09	4,124.59
Haralson	517.902	43.61	561.512	10,705.99	56.39	10,762.38
Lincoln	18.911	2.27	21.181	390.94	2.93	393.87
Lumpkin	1,887.634	203.52	2,091.154	39,020.86	263.13	39,283.99
McDuffie	155.763	16.35	172.113	3,219.91	21.14	3,241.05
Meriwether	28.656	4.38	33.036	592.37	5.66	598.03
Oglethorpe	35.147	5.37	40.517	726.55	6.95	733.50
Rabun	14.247	.90	15.147	294.51	1.17	295.68
Union	11.021	.62	11.641	227.83	.80	228.63
White	699.631	85.00	784.631	14,462.66	109.91	14,572.57
Unknown	96.606	12.09	108.696	1,997.02	15.63	2,012.65
Total	6,481.742	492.98	6,974.722	133,989.50	637.38	134,626.88

ALABAMA.

For the detailed statement of production see Table 8. There was a falling off in 1898, amounting to nearly 23 per cent.

The situation in Cleburne, Clay, and Randolph counties remained without change, and the work accomplished was almost entirely confined to surface operations.

In Tallapoosa County the work was done mostly near Blue Hill and Gregory Hill. There appears no evidence of greater activity in 1899.

The Blue Hill mine is operated by Messrs. Phillips, with 8 stamps; the output was small; the development work is considerable, and, possibly, additions may be made to the milling plant.

Parmalee mine, or Gregory Hill mine, is worked by James Hall, with 6 stamps.

The Susanna mine is run by Thomas Farrow.

TABLE 8.—ALABAMA.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Clay	19.697	3.66	23.357	$407.18	$4.73	$411.91
Cleburne	64.913	3.32	68.233	1,341.86	4.29	1,346.15
Randolph	17.044	2.99	20.034	352.33	3.86	356.19
Tallapoosa	202.401	50.52	252.921	4,184.00	65.31	4,249.31
Unknown	14.140	2.90	17.040	292.30	3.75	296.05
Total	318.195	63.39	381.585	6,577.67	81.94	6,659.61

TENNESSEE.

The production is shown in Table 9. So far as I can learn, the "Unknown" was probably also from Monroe County, the work practically "placer work" exclusively.

TABLE 9.—TENNESSEE.

Counties.	Gold.	Silver.	Total.	Gold.	Silver (coining value).	Total.
	Fine ounces.	*Fine ounces.*	*Fine ounces.*			
Monroe	2.419	0.18	2.599	$50.01	$0.23	$50.24
Unknown	4.695	.56	5.255	97.06	.72	97.78
Total	7.114	.74	7.854	147.07	.95	148.02

XI.

SOUTH DAKOTA.

By Franklin R. Carpenter,
Deadwood, S. Dak.

Gold has been derived from three sources in the Black Hills: (1) Placers; (2) free milling ores; (3) refractory ores.

(1) *Placers.*—Very little gold is now derived from placers, or alluvial washings. The little that is produced comes almost entirely from the western portions of Lawrence County, and is gradually growing less, owing to the exhaustion of the deposits of this character.

(2) *Free milling ores.*—These are the most important sources of gold in the Black Hills, and were, of course, the sources from which the placers were derived. The most important mines are the Homestake or "Belt" mines. They have long been practically under one management, though operated under separate companies. At this writing there is a proposition being considered that will unite the holdings of the various companies into one great gold mining company. The consolidation will probably include the following: The Homestake Mining Company, the Highland Mining Company, the Deadwood-Terra Mining Company, the Caledonia Mining Company, with which will also be included the water companies and the railroad. This combination will form one of the greatest, if not the very greatest, gold mining companies in the world.

The Homestake deposit consists of vast mineralized zones of Pre-Cambrian slates, carrying some pyrite and pyrrhotite that are themselves only slightly gold bearing, the gold contents of the deposit being found in association with these minerals, but not to any great extent in combination with them. The deposit is therefore singularly free milling. It was in place and gold bearing in Pre-Cambrian times, and was beyond doubt formed with folding and metamorphosing of the slates, all of which took place in Pre-Cambrian time. The deposit is practically inexhaustible by any ordinary means at the command of the miner. I have no hesitancy in saying that the present rate of production can be maintained for many years to come.

(3) *Refractory ores.*—This class of ores consists of impregnations and infiltrations occurring usually upon the top of the Cambrian quartsite, which rests unconformably upon the slates above mentioned, and their gold contents were derived, beyond doubt, from the deposits in the slates by infiltration and redeposition. Three large companies—the Golden Reward Consolidated Gold Mining and Milling Company, the Kildonan Mill, and the Deadwood and Delaware Smelting Company—have mainly exploited these deposits. There are a few other companies, but for ten years the individual owners and smaller companies have been selling out to, or being consolidated with, the three above-mentioned companies, and lately a move has been made to consolidate these larger companies, terms of purchase having been agreed upon between the Golden Reward Company and the Deadwood and Delaware Smelting Company, whereby the former will absorb the latter.

There are numerous smaller deposits of the Homestake type in the Hills, besides smaller quartz veins that are, also, free milling, but no new or startling discoveries are expected to be made in this section.

The increase in the output of gold is rather to be looked for in the cheapening of the methods of production, which will make profitable ores of a lower grade, and the development of deposits already found but not yet worked. The outlook is good, therefore, for a long continued production of gold from this section, but no startling increase in the quantity need be expected, or, in fact, any increase other than that which may come from legitimate growth upon the line above indicated.

GOLD AND SILVER PRODUCTION OF THE BLACK HILLS (SOUTH DAKOTA) FOR THE CALENDAR YEAR 1898.

Metals.	Fine ounces.	Value.
Gold	278, 904. 868	$5, 578, 097. 36
Silver (commercial value)	138, 382. 79	83, 029. 67
Total value		5, 661, 127. 03

NOTE.—Gold at $20 per ounce; silver at 60 cents per ounce.

XII.

UTAH.

By Eugene B. Braden,
Assayer in charge, United States assay office, Helena, Mont.

Utah's contribution to the precious metal output of the United States in 1898 was valued at $14,654,235.97, and was divided among gold, silver, lead, and copper, in the following quantities:

Description.	Quantity.	Value.
Gold (fine ounces)	114, 766. 891	$2, 372, 442. 20
Silver (fine ounces, coining rate)	6, 570, 255. 50	8, 494, 875. 79
Copper (fine pounds, at $12.03 per cwt.)	5, 191, 542. 00	624, 542. 50
Lead (fine pounds, at $3.78 per cwt.)	83, 660, 727. 00	3, 162, 375. 48
Total		14, 654, 235. 97

When compared with the yields of the preceding year the following increases and decreases may be noted:

Metals.	1897.		1898.		Increase.
	Quantity.	Value.	Quantity.	Value.	
Gold .... fine ounces	89, 297	$1, 845, 938	114, 767	$2, 372, 442	$526, 504
Silver .... do	6, 689, 754	8, 649, 378	6, 570, 256	8, 494, 876	*a* 154, 502
Copper .... fine pounds	3, 854, 821	435, 595	5, 191, 542	624, 543	188, 948
Lead .... do	75, 468, 128	2, 716, 853	83, 660, 727	3, 162, 375	445, 522
Total		13, 647, 764		14, 654, 236	1, 006, 472

a Decrease.

Precious metal mining in Utah is in a particularly attractive condition. Until recent years the silver-lead ore bodies were the most profitable field for mining investment and development. Because of the adaptation of cyanide as a solvent in the treatment of the large low-grade bodies of ore carrying gold, this branch of the production has now assumed an importance equal with that of the silver-lead output and places Utah in an enviable position among those of the other States contributing to the constantly increasing gold output of the United States.

The origin of the gold in 1897 and 1898 in Utah was as follows:

Description.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Value.	
In quartz and dry ores	6, 114. 668	$126, 401. 40	4, 398. 574	$90, 926. 59	*a* $35, 474. 81
In cyanides	30, 000. 000	620, 155. 04	56, 207. 900	1, 161, 920. 41	541, 765. 37
In lead ores	52. 084. 381	1, 076, 679. 73	42, 053. 752	869, 328. 21	*a* 207, 351. 52
In copper ores	1, 098. 213	22, 702. 08	2, 046. 735	42, 309. 77	19, 607. 69
In milling ores			10, 059. 930	207, 957. 21	207, 957. 21
Total	89, 297. 262	1, 845, 938. 25	114, 766. 891	2, 372, 442. 19	526, 503. 94

a Decrease.

Note.—In 1897 the gold won from lead ores by milling was shown as originating in "lead ores" and in "quartz and dry ores." These in 1898 are included under milling ores. The decreases shown above being about balanced by the increase shown in 1898 for gold from milling ores would indicate little changes in the amounts of gold from these sources.

The above table shows that the entire increase in the output of gold during 1898 in Utah was due to the employment of the cyanide process, which thus becomes of prime importance. Forty-nine per cent of the entire output of gold was won through this agency. The rapid growth and development of the famous Mercur district is wholly due to its adaptation in the treatment of the enormous bodies of ore long known to exist, but held as of little value because of no known method to save the values. At Mercur the properties producing gold in large quantities and employing cyanide as a solvent were Captain De La Mar's mines and Golden Gate mill, the Mercur mine and mill, and the Geyser-Marion mine and mill. The cyanide process was also employed at Bingham by the Highland Boy Gold Mining Company.

The gold secured by the mills and smelters from higher grade ores and from ores carrying copper and lead indicate but small deviation in the industry from the conditions of the previous year.

No information is obtainable to show that Utah furnished any placer gold whatever in 1898. A company was developing placer ground below Bingham, but it is not believed that any bullion was produced.

The counties that are regular producers of gold are Juab, Salt Lake, Summit, and Tooele. These show an increase in 1898, which was small in amount except in the case of Tooele County. This increase is shown below for each of these counties.

County.	1897.		1898.		Increase.
	Fine ounces.	Value.	Fine ounces.	Value.	
Juab	37, 038. 938	$765, 662. 80	38, 136. 264	$788, 346. 55	$22, 683. 75
Salt Lake	8, 155. 234	168, 583. 65	9, 913. 186	204, 923. 74	36, 340. 09
Summit	5, 200. 168	107, 497. 01	6, 434. 094	133, 107. 88	25, 610. 87
Tooele	34, 857. 912	720, 576. 99	55, 841. 371	1, 154, 343. 59	433, 766. 60
Total	....	1, 762, 320. 45	....	2, 280, 721. 76	518, 401. 31

Beaver, Carbon, and Iron counties produce gold in comparatively small quantities, but nearly all of the properties that yield this metal are under development. This is not true of the Horn Silver mine, in Beaver County, which is an old and important property, but the ores from this mine carry but small value in gold to the ton. The values are principally in the silver and lead contained.

The production of silver during 1898 shows but few new features from the output of recent years. The proportions originating in the several classes of ore were practically the same as in 1897. This would indicate that conditions were but little altered from those prevailing during the previous year.

The production of 5,191,542 pounds of copper in Utah during 1898 is an increase of 1,336,721 pounds over the output of 1897. The greater portion of this yield came from the Tintic and Bingham districts of Juab and Salt Lake counties, respectively. Small lots were reported from Beaver, Summit, and Tooele counties.

An increase of over 10,000,000 pounds in the amount of lead produced in the State during 1898 indicates that the mining of lead ores continues to grow in importance. Summit County is the largest producer of this metal. Here is located the famous Silver King mine, that annually puts out the largest tonnage of ore in Utah.

The Tintic district makes Juab County the second in point of importance as a lead producer. The yield of this metal is large. Salt Lake, Beaver, and Tooele counties follow in the order named, each contributing a considerable percentage to the total output.

JUAB COUNTY.

This county contains the Tintic district, in which are situated the camps of Eureka, Silver City, Mammoth, Robinson, and others. Travel and transportation facilities are afforded by the Rio Grande, Western and Oregon Short Line railroads, both of which are built to each of the principal camps. Progress is being made here in the working of old properties and in the development of new ones. The leading properties are the Eureka Hill, Bullion-Beck and Champion, Centennial-Eureka, Grand Central, Mammoth, Star Consolidated, Swansea, South Swansea, Eagle and Blue Bell, Humbug, Uncle Sam, and Joe Bowers. These are equipped with hoists, mills, and concentrating plants, according to the character of the product and the requirements for profitable operation.

The dividends paid by the mines of this district in 1898 amounted to $633,750. In 1897 these were $377,500. The earnings of a number of properties are not included in these figures, as they are controlled by close corporations and do not furnish statements of their operations.

The mines of the district generally produce gold, silver, and lead. Copper occurs in a few, but of a small percentage, as at the Centennial-Eureka and Eureka Hill.

The shipments from the Tintic in 1898 were 4,590 cars of crude ore and 552 cars of concentrates, a total of 126,625 tons. Besides these products for smelting, there were 912 bars of gold, silver, and copper, and one lot of bullion weighing 15,535 pounds. The quantities and values of the metallic contents of these shipments, together with small lots from Fish Springs, in the western portion of the county, and which together composed the product of Juab County in 1898, was as follows:

Metals.		Quantity.	Value.
Gold	fine ounces	38, 136. 264	$788, 346. 55
Silver	do	3, 389, 507. 16	4, 382, 393. 09
Copper	pounds	2, 073, 759. 00	249, 473. 21
Lead	do	29, 060, 841. 00	[illegible], 098, 499. 79
Total			6, 518, 712. 64

SALT LAKE COUNTY.

The principal point of production in this county is at Bingham, where considerable activity was displayed during 1898. The established producers are the Highland Boy, Old Jordan and Galena, and Old Telegraph mines. Besides these there are a number of small producers in the district. The ores carry gold, silver, copper, and lead.

The Highland Boy is the leading producer. This property is equipped with a cyanide mill of 125 tons capacity. The claims belonging to this company have been steadily developed during the year. The owners are interested in the building of a smelter south of Salt Lake City. The cyanide mill was in operation during the first half of the year, when it was closed down, and the ores have since been held in reserve in anticipation of the completion of a smelting plant.

Besides the mines at Bingham the districts of the Big Cottonwood, Little Cottonwood, and Alta are located in this county. There was but little production from these in 1898.

The yield of precious metals in Salt Lake County during 1898 is shown below:

Metals.	Quantity.	Value.
Gold .... fine ounces..	9,913.186	$204,923.74
Silver .... do....	381,476.49	493,222.13
Copper .... pounds..	2,383,791.00	274,740.06
Lead .... do....	8,862,243.00	334,992.79
Total	....	1,307,878.72

SUMMIT COUNTY.

Silver and silver-lead mining in the neighborhood of Park City have made Summit County long famous as one of the most important mining centers in the United States. Here are located the Ontario, Daly, Silver King, and other mines.

The product of the Ontario mine is silver. Both mine and mill were closed down in October, 1897, since which time but little ore has been taken out and sold. The tailings, accumulations of years, however, carry value sufficient to pay for treatment. The Marsac mill at Park City was engaged during 1898 in working these to the extent of about 85 tons per day. The Ontario, since discovery, has paid more than thirteen and a half millions in dividends, and it is reliably believed that the property will resume its former large production some time in 1899. The conditions at the Daly are practically those at the Ontario, both properties being under the same management.

The Silver King worked steadily during 1898. The product is lead ore, carrying silver, and some gold. Many improvements were made by this company during the year calculated to lessen the cost of treatment for their ores and increase the facilities of production. Coincident with these improvements large bodies of ore have been developed.

Principal among the improvements made by this company was the erection of a concentrating plant capable of handling 150 tons of crude ore per day. The dividends paid by the Silver King in 1898 were $450,000, making the total paid to date $1,800,000.

The Anchor Mine and Concentrator is a Park City property that each year shows a larger production. The ore is similar to that of the Silver King.

The yield of precious metals in Summit County during 1898 was as follows:

Metals.	Quantity.	Value.
Gold .... fine ounces..	6,439.094	$133,107.88
Silver .... do....	2,215,496.24	2,864,479.98
Copper .... pounds..	54,609.00	6,569.46
Lead .... do....	32,233,553.00	1,218,428.30
Total	....	4,222,585.62

TOOELE COUNTY.

The output from this county originates at and about Mercur. A small amount, however, comes from the Deep Creek district, in the western part of the county.

At Mercur the leading producers in 1898 were the Mercur, Golden Gate, Geyser-Marion, and Chloride Point. Other properties in process of development and equipment will probably be added to these in the early future. The ore occurs in a blanket formation, thus reducing the cost of mining to a minimum. The values are extracted by the cyanide process.

The Mercur mine has been operated for some years, and large bodies of ore are in sight. The dividends paid in 1898 amounted to $355,000, making the total earnings paid by this property to date $2,240,000.

The most important feature at Mercur in 1898 was the operations at the Golden Gate. This enterprise is owned by Capt. J. R. De La Mar, and the mining and milling operations are followed on a mammoth scale. The new mill was completed and put into operation in April. This structure is built of iron and steel. Electrical power to operate the hoist and all machinery of the mill is obtained from water power and transmitted 35 miles to Mercur. The mill started in April at a rated capacity of 500 tons per day, but the plant was subsequently enlarged, by the addition of more tanks, to a capacity of 800 tons. The mill is built in steps on the hillside, and covers about 2½ acres. The development of ore bodies in the mine has been steadily followed, and the amounts blocked out are enormous.

The yield of precious metals by Tooele County, in 1898, was as follows:

Metals.	Quantity.	Value.
Gold .... fine ounces..	55, 841. 371	$1, 154, 343. 59
Silver .... do....	125. 865. 56	162 735. 27
Copper .... pounds..	336, 890. 00	40. 527. 87
Lead .... do....	2, 454, 842. 00	92, 783. 03
Total	....	1, 450, 389. 76

The statistical tables that follow set forth much information not previously shown herein. Care has been exercised that no duplications should be included in their composition.

PRODUCTION OF GOLD AND SILVER IN UTAH DURING THE CALENDAR YEAR 1898.

Summary by counties.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Beaver	719. 733	$14, 878. 20	309, 986. 00	$400, 789. 98	$415, 668. 18
Carbon	250. 000	5, 167. 96	200. 00	258. 59	5, 426. 55
Iron	290. 000	5, 994. 83	2, 510. 00	3, 245. 25	9 240. 08
Juab	38, 136. 264	788. 346. 55	3, 389, 507. 16	4, 382, 393. 09	5, 170, 739. 64
Salt Lake	9, 913. 186	204, 923. 74	381, 476. 49	493, 222. 13	698, 145. 87
Summit	6, 439. 094	133, 107. 88	2, 215, 496. 24	2, 864, 479. 98	2, 997, 587. 86
Tooele	55, 841. 371	1, 154, 343. 59	125, 865. 56	162, 735. 27	1, 317, 078. 86
Returns from custom smelters, mints, and assay offices, impossible to classify by counties	3, 177. 243	65. 679. 44	145, 214. 05	187, 751. 50	253, 430. 94
Total	114, 766. 891	2, 372, 442. 19	6, 570, 255. 50	8, 494. 875. 79	10. 867, 317. 98

BULLION OF UTAH PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND ASSAY OFFICES DURING THE CALENDAR YEAR 1898.

Institution.	Gold.		Silver.		Total value.
	Standard ounces.	Value.	Standard ounces.	Commercial value.	
Assay offices:					
Boise	162. 157	$3, 016. 87	39. 14	$45. 54	$3, 062. 41
New York	8, 454. 645	157, 295. 72	890. 42	1, 036. 12	158, 331. 84
Mints:					
Denver	4, 563. 236	84, 897. 41	2, 995. 58	3, 485. 76	88, 383. 17
San Francisco	4, 129. 031	76, 819. 18	3, 076. 46	3, 579. 88	80, 399. 06
Total	17, 309. 069	322, 029. 18	7, 001. 60	8, 147. 30	330, 176. 48

PRODUCTION OF GOLD AND SILVER IN UTAH (ORIGIN DETAILED) DURING THE CALENDAR YEAR 1898.

Origin.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
In mill bullion	10, 059. 930	$207, 957. 21	1, 139, 640. 52	$1, 473, 474. 61	$1, 681, 431. 82
In cyanide mill bullion	56, 207. 900	1, 161, 920. 41	33, 191. 27	42, 913. 96	1, 204, 834. 37
In dry ores and concentrates	4. 398. 574	90, 926. 59	171, 803. 67	222, 130. 00	313, 056. 59
In copper ores	2, 046. 735	42, 309. 77	163, 160. 91	210, 955. 52	253, 265. 29
In lead ores	42, 053. 752	869, 328. 21	5, 062, 459. 13	6, 545, 401. 70	7, 414, 729. 91
Total	114, 766. 891	2, 372, 442. 19	6, 570, 255. 50	8, 494, 875. 79	10, 867, 317. 98

ORIGIN, BY PERCENTAGES, OF THE PRODUCTION OF GOLD AND SILVER IN UTAH DURING THE CALENDAR YEAR 1898.

Origin.	Gold.	Silver.
	Per cent.	*Per cent.*
Mill bullion	8. 76	17. 32
Cyanide mill bullion	48. 98	. 51
Dry ores and concentrates	3. 83	2. 62
Copper ores	1. 78	2. 50
Lead ores	36. 65	77. 05
Total	100	100

PRODUCTION OF COPPER AND LEAD IN UTAH DURING THE CALENDAR YEAR 1898.

Summary by counties.	Copper.	Lead.
	Fine pounds.	*Fine pounds.*
Beaver	139, 291	8, 153, 030
Juab	2, 073, 759	29, 060, 841
Salt Lake	2, 283, 791	8, 862, 243
Summit	54, 609	32, 235, 553
Tooele	336, 890	2, 454, 842
Custom smelters in addition to the above	303, 202	2, 894, 218
Total	5, 191, 542	83, 660, 727

DISPOSITION OF GOLD AND SILVER OF UTAH PRODUCTION DURING THE CALENDAR YEAR 1898.

Disposition.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Deposited at the United States mints and assay offices	15, 578. 163	$322, 629. 18	6, 301. 44	$8, 147. 30	$330, 176. 48
Shipped to custom smelters and refiners by producers	99, 188. 628	2, 050, 413. 01	6, 563, 954. 06	8, 486, 728. 49	10, 537, 141. 50
Total	114, 766. 791	2, 372, 442. 19	6, 570, 255. 50	8, 494, 875. 79	10, 867, 317. 98

XIII.

WASHINGTON.

By Frederick A. Wing,
Assayer in charge, United States assay office, Seattle, Wash.

By referring to the tables attached hereto it will be seen that notwithstanding the virtual abandonment of many of the mining districts in this State, resultant from the stampede to the Klondike, and the total stoppage of all operations at the Monte Cristo and many other mines consequent upon the failure to rebuild the Everett and Monte Cristo Railroad, the production of precious metals in the State of Washington for the year shows an appreciable increase. By a comparison with the output for the year 1897 it will be seen that the yield for 1898 has exceeded the production for that year by $307,053.84, as follows:

Metals.	1897.		1898.	
	Quantity.	Value.	Quantity.	Value.
Gold....fine ounces..	21,752.504	$449,664.15	29,611.196	$612,117.74
Silver (coining value)....do....	242,780.85	313,898.46	329,548.68	426,083.13
Lead....fine pounds..	....	....	857,555.00	32,415.58
Total	....	763,562.61	....	1,070,616.45

Table of Increase.

Items.	1897.	1898.	Increase.
Total value, gold	$449,664.15	$612,117.74	$162,453.59
Total silver (coining value)	313,898.46	426,083.13	112,184.67
Total value, lead	....	32,415.58	32,415.58
Total increase..........	....	....	307,053.84

While the results are in a measure satisfactory, it is regrettable that the intense activity that prevailed throughout the eastern and western districts of the State in 1896, up to the time of the arrival of the *Portland* with its hoard of treasure from Alaska, should not have continued, as the State of Washington was rapidly assuming that place among the wealth-producing States of the Union to which by virtue of its well-known mineral resources it is entitled.

The event of initial importance in mining development of the State during the year 1898 was the opening of the Republic mine, which demonstrated the richness of the district lying north of Spokane, in Stevens County, and has more than justified the expectations of its discoverers. Within the year Republic, formerly called "Eureka," has emerged from an obscure camp into one of the most widely known mining districts of the entire Northwest. The active and systematic development of the Republic mine commenced in the spring of 1898. Since that time the Republic mine has paid for over 5,000 feet of workings above and below the second level, at an aggregate cost of $79,000;

a mill plant, water flume, and all accessories, at a cost of $75,000, besides paying nearly $100,000 in dividends, making a total of a quarter of a million in less than one year from the date of its first production.

There are many other flattering properties in this district, among which might be mentioned the Lone Pine, Mountain Lion, Insurgent, Butte and Boston, and others soon to be classed as dividend payers of this now famous Republic camp.

Rich free-milling ore has been struck in the Pierre Lake district, and on the La Fleur Mountain high grades of gold-copper have been opened up in the Washington, Comstock, and other mines.

Also among the notable properties in Stevens County, but not in the Republic district proper, might be mentioned Deer Trail No. 1, Deer Trail No. 2, both being large producers of silver and lead, and the Bonanza, all of which have produced some considerable revenue during the year, and on which much intelligent development work has been done.

Okanogan County, the large district lying east of the Cascade Range, counts within its borders many valuable properties on which development work has steadily progressed, and is rapidly assuming a substantial and permanent basis. One of the greatest undertakings in mining in the entire State is the Palmer Mountain tunnel, which is being driven through the mountain from which it derives its name. Fully 3,500 feet of double-track tunnel have been completed, during the progress of which many rich ledges have been cut. Not only have they encountered the ledges outcropping on the surface, but many blind ledges of some considerable width and richness have been opened up by this tunnel, demonstrating the wisdom of this gigantic undertaking.

Other districts showing marked advancement are the Lumis, Conconnully, Methow, Lake Chelan, and Leavenworth, all in various stages of development, and the production from these districts is steadily increasing. Contemplated railroad development will, when completed, materially cheapen the cost of operation and greatly facilitate the development of this vast and important section of the State. Cyaniding has superseded the stamps and vanners in some of the mines, notably the Triune, with gratifying results.

The Methow district proper embraces all discoveries along the Methow River, from Twisp Creek to the Columbia River, a distance of 30 miles. In this district iron and copper sulphite ore has been opened in the Hidden Treasure, Highland Light, Friday, Emerald, Gray Eagle, Spokane, and Red Shirt, the latter having a 20-stamp mill in operation.

While the output from the placer mines along the Snake River, which have been operated in a desultory way, show a fair increase in amount, there has been no remarkable improvement, and the only placer district that can be included in the progressive class of the State's mining industries is the one situated in Kittitas County, on the Swauk.

Eastern parties have secured control of nearly all the well-known claims, and by the adoption of more scientific methods, modern appliances, and business management have done much to enhance the importance of this district. Work has been done on the Mears, Bigney, and Black claims, and the Cascade Mining Company has constructed a large flume, putting in hydraulics and making other substantial improvements that will largely increase the output of its mines.

In the Peshastin district the Mohawk Mining Company has built 4,000 feet of double-planked flume, carrying 4,000 miners' inches of water, besides putting in 2,000 feet of sixteenth-inch steel pipe and monitors, which will enable them to mine extensively the coming season. The output of these placer districts for 1898 will aggregate $100,000.

Second in importance only in amount of production to the districts of eastern Washington, owing to its advanced development, is the vast district lying along the western slope of the Cascades, in Whatcom, Skagit, Snohomish, and King counties. Beginning at the northern boundary and taking the districts in regular order, we find the greatest activity along the Baker River, in what is known as the Baker district. The principal mine of importance is the Post-Lambert, on which a 10-stamp mill has been erected and a great deal of preliminary work has been done, showing a large continuous ledge running in free gold that has assayed hundreds of dollars to the ton; also the Robert Floerman discovery, from which assays aggregating $1,100, $1,200, and $3,900 per ton were made from three selected samples of 100 pounds each. These properties promise well and bid fair to become great producers. Some placer mining is being done along the Baker River by amalgamation, results varying from 50 cents to $2 per ton. Lying farther south we find the Slate Creek district, and a brief summary of the mining properties on Ruby, Canyon, and Slate Creeks practically covers all the districts in Whatcom County. Canyon and Slate creeks are tributaries of Ruby Creek and have their sources in a great mineral belt which runs northerly on the west watershed of this same range.

The formation is eruptive slate, syenite, and porphyry, the yellow porphyry predominating. The mines in the best state of development at present are the Mountain Goat, which has 250 feet of tunnel, a 5-stamp mill and concentrator, tramways, etc.; the Whistler, on which some considerable work has been done; the Eureka, Mammoth, and Tip Top. The Ruby Mining Company, located at the mouth of Ruby Creek, has put in a large hydraulic plant and some 2 miles of flume, at a total cost of $65,000, which will result in systematic work and a large output for the coming season.

Other properties, notably those owned by the Old Channel and Hydraulic Mining Company, are being developed to a greater or less extent, and, although the output has not been large this season, the indications are that the placer output of the State will be largely increased through their efforts.

In Snohomish County, on the Sultan side of the ridge, overlooking Silverton, is the Forty-Five, one of the most thoroughly developed mines in the Cascades. It is located upon the head waters of that fork of the Sultan River known as Williamson Creek. Active development work was begun thereon in the spring of 1896 and has been continuously prosecuted ever since, the mining work having been confined to the Dea Pree lodes. There has been an aggregate of 1,025 feet of tunnel driven in the development of the lode, and the company now has in the neighborhood of 12,000 tons of ore in its ore bunkers and upon the dump. It has shipped and sold to the smelter during the year 258½ tons, aggregating in value $89.40 per ton. The company has 3,700 feet of aerial tram line from the mine down the mountains to headquarter's camp, where are located ore bunkers, etc., and which is the end of a tram line over 13,000 feet in length connecting with the Everett and Monte Cristo Railroad, which was rendered useless by the washing out of that road. During the interim it constructed a wagon and sled road down the Sultan River a distance of 27 miles to the Great Northern Railway, over which considerable ore has been shipped. The ore carries gold, silver, and lead.

The Little Chief group, located on Williamson Creek, on the Little Chief Mountain, about three-fourths of a mile from the property of the Forty-Five Consolidated Mining Company, shows a fine ledge of copper-carrying cobalt. About 300 feet of tunnel work has been done.

The Great Northern group of mining claims is located near the mouth of the canyon of the Sultan River, about 10 miles from Sultan. There has been driven upon the property about 100 feet of tunnel, opening up a very large vein of low-grade copper ore.

The Bonanza Queen group of claims is located about 2½ miles from Silverton, in the east end of Long Mountain, upon Deer Creek, a branch of the Stilaguamish River. There has been about 300 feet of tunnel driven on this property. The ledge is very wide—over 50 feet—and the ore is chalcopyrite, carrying about 16 per cent copper and a few dollars in gold per ton.

The Helena group of claims is located upon Deer Creek, about 7 miles from Silverton, and has a total of 200 feet of tunnel, opening up a large body of medium-grade copper ore.

The St. Louis group is located in this section, and has some 311 feet of tunnel completed. The ore—a chalcopyrite—is worth on an average $37 per ton.

The Independent mine is located on the east side of the Stilaguamish River. The company has driven about 200 feet of tunnel with a Burleigh drill and has a large quantity of medium-grade ore upon the dump, carrying gold and silver.

The Bell and Crown group of claims is located upon the western side of Marble Mountain, and has about 80 feet of tunnel driven, 42 feet of which is in ore carrying copper, gold, and silver.

The mining claims in Sheep Gap, at the head of the Sultan River, have not yet advanced beyond the stage of prospects.

On Silver Creek lies a rich district recently made more accessible by the construction of a wagon road from Index, on the Great Northern Railroad. There are some of the strongest surface showings in the country in iron and copper sulphurets and galena—copper-gold in the Orphan Boy, Lockwood, Kasper, Webster, et al.; galena in the Vandalia, Morning Star, and Minnehaha.

The large amount of work done in the Troublesome district on the Daisy and Great Scott has resulted in a fine showing in gold and silver ore in large quantities. The mines are under bond to a syndicate of German capitalists.

In the Index district the most promising mine is that owned by the Sunset Copper Mining Company, which has opened up an immense body of copper-sulphide ore, placing the mine on an assured footing.

In the Miller River district are two of the strongest companies of the State, operating on the Coney and Cleopatra mines, the development of the latter showing over 1,000 feet of tunneling, exposing a vein of ore 175 feet in length by 3½ feet in thickness. It is a concentrating ore, carrying sulphide, gray copper, and galena in paying quantities. Aces Up, Fourth of July, and Sunday have similar showings.

On Money Creek, which has its source in the same ridge as Miller River, the Apex has produced several hundred tons of ore running $50 in gold, silver, and lead. The Chicago also has a good body of copper sulphide.

On the Middle Fork of Miller River good ledges of sulphuret ore have been discovered, and a great ledge of hornblendic quartz crops out in Bald Hornet. Magnetic iron and copper pyrites are found in the Denny, Guy, and Chair Peak mines.

PRODUCTION OF GOLD AND SILVER IN WASHINGTON (ORIGIN DETAILED) DURING THE CALENDAR YEAR 1898.

Origin.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Placer bullion	5, 458. 916	$112, 845. 81	1, 448. 75	$1, 873. 13	$114, 718. 94
Mill bullion	3, 329. 812	68, 833. 32	8, 926. 20	11, 540. 94	80, 374. 26
Concentrates, classed as smelting ores	20, 822. 468	430, 438. 61	319, 173. 73	412, 669. 06	843, 107. 67
Total	29, 611. 196	612, 117. 74	329, 548. 68	426, 083. 13	1, 038, 200. 87

TOTAL PRODUCTION OF PRECIOUS METALS IN THE STATE OF WASHINGTON DURING THE CALENDAR YEAR 1898.

Description.	Quantity.	Value.
Gold ... fine ounces	29, 611. 196	$612, 117. 74
Silver (coining value) ... do	329, 548. 68	426, 083. 13
Lead, at $3.78 per hundredweight ... fine pounds	857, 555. 00	32, 415. 58
Total		1, 070, 616. 45

BULLION OF WASHINGTON PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND ASSAY OFFICES DURING THE CALENDAR YEAR 1898.

Institutions.	Gold.		Silver.		Total value.
	Standard ounces.	Value.	Standard ounces.	Coining value.	
MINTS.					
Philadelphia	23. 320	$433. 86	6. 20	$7. 21	$441. 07
San Francisco	2, 072. 128	38, 551. 22	523. 32	608. 95	39, 160. 17
ASSAY OFFICES.					
Boise	82. 712	1, 538. 83	24. 57	28. 59	1, 567. 42
Helena	2, 764. 223	51, 427. 40	662. 25	770. 62	52, 198. 02
New York	5. 366	99. 83	1. 86	2. 16	101. 99
Seattle	1, 423. 038	26, 475. 11	556. 74	647. 84	27, 122. 95
Total	6, 370. 787	118, 526. 25	1, 774. 94	2, 065. 37	120, 591. 62

DEPOSITS OF GOLD BULLION RECEIVED AT THE UNITED STATES ASSAY OFFICE, SEATTLE, WASH., DURING THE CALENDAR YEAR 1898.

Source (counties, etc.).	Gold.		Silver.		Total value.
	Standard ounces.	Value.	Standard ounces.	Commercial value.	
WASHINGTON.					
King	67. 472	$1, 255. 28	14. 85	$7. 44	$1, 262. 72
Kittitas	489. 971	9, 115. 72	90. 83	45. 47	9. 161. 19
Okanogan	776. 127	14, 439. 58	429. 86	214. 96	14, 654. 54
Pierce	10. 393	193. 36	1. 26	. 63	193. 99
Whatcom	79. 075	1, 471. 17	19. 94	9. 98	1, 481. 15
Total	1, 423. 038	26, 475. 11	556. 74	278. 48	26, 753. 59
OTHER SOURCES.					
Alaska	12, 834. 023	238, 772. 43	2, 818. 04	1, 409. 33	240, 181. 76
Idaho	107. 850	2, 006. 51	18. 23	9. 12	2, 015. 63
Montana	11. 125	206. 98	. 67	. 34	207. 32
Oregon	98. 541	1, 833. 32	12. 06	6. 04	1, 839. 36
British Columbia	9, 332. 839	173, 634. 21	3, 154. 10	1, 577. 20	175, 211. 41
Northwest Territory	273, 871. 403	5, 095, 282. 49	75, 673. 25	37, 842. 90	5, 133, 125. 39
Jewelry	28. 144	523. 61	2. 23	1. 12	524. 73
Redeposits	2, 331. 518	43, 377. 08	352. 56	176. 29	43, 553. 37
Total	298, 615. 443	5, 555, 636. 63	82, 031. 14	41, 022. 34	5, 596, 658. 97
Grand total	300, 038. 481	5, 582, 111. 74	82, 587. 88	41, 300. 82	5, 623, 412. 56

DISPOSITION OF GOLD AND SILVER OF WASHINGTON PRODUCTION DURING THE CALENDAR YEAR 1898.

Disposition.	Gold.		Silver.		Total value.
	Fine ounces.	Value.	Fine ounces.	Coining value.	
Deposited at the United States mints and assay offices.......	5, 733. 708	$118, 526. 25	1, 597. 44	$2, 065. 37	$120, 591. 62
Shipped to customs smelters and refineries by producers..	23, 877. 488	493, 591. 49	327, 951. 24	424, 017. 76	917, 609. 25
Total......................	29, 611. 196	612, 117. 74	329, 548. 68	426, 083. 13	1, 038, 200. 87

XIV.

WYOMING.

By Franklin R. Carpenter,

Deadwood, S. Dak.

I have been utterly unable to get any satisfactory reports from Wyoming as to its gold production for 1898, but I would not estimate the product of placer gold from the part of the State adjoining the Black Hills at more than $500. There is, also, some gold produced in the neighborhood of Lander, but the amount is not very considerable.

Bodies of hematite iron ore, carrying a little gold, are mined along the Cheyenne Northern, primarily as an iron flux for lead smelting, so that it is impossible to get at the contents of gold. I do not estimate the output of gold from the State of Wyoming at more than $5,000.

PART II.

PRODUCTION OF GOLD AND SILVER IN FOREIGN COUNTRIES.

PRODUCTION OF GOLD AND SILVER IN FOREIGN COUNTRIES.

AFRICA.

In 1898 Africa produced gold to the value of $80,428,008, which is nearly 28 per cent of the world's product, and a large increase over 1897, when it furnished $58,558,682, or 24 per cent of the total annual output.

The following table shows whence the output has been derived since 1888:

Year.	Transvaal.		West Coast.		French colonies.*a*		Rhodesia.		Total.	
	Weight.	Value.	Weight.	Value.	Weight.	Value.	Weight.	Value.	Weight.	Value.
	Kilos.		*Kilos.*		*Kilos.*		*Kilos.*		*Kilos.*	
1889..	11, 719	$7, 788, 372	1, 270	$844, 262	261	$173, 461	(*b*)	....	13, 250	$8, 806, 095
1890..	15, 706	10, 438, 356	1, 062	705, 705	261	173, 461	(*b*)	....	17, 029	11, 317, 522
1891..	22, 398	14, 885, 639	1, 289	856, 730	261	173, 461	(*b*)	....	23, 948	15, 915, 830
1892..	34, 938	23, 220, 108	1, 528	1, 011, 924	*c* 261	173, 461	(*b*)	....	36, 722	24, 405, 493
1893..	42, 573	28, 293, 831	977	649, 695	261	173, 461	(*b*)	....	43, 811	29, 116, 987
1894..	59, 730	39, 696, 330	865	574, 653	261	173, 461	(*b*)	....	60, 856	40, 444, 444
1895..	66, 045	43, 893, 300	995	661, 630	261	173, 461	(*b*)	....	67, 301	44, 728, 391
1896..	65, 874	43, 779, 669	945	627, 938	261	173, 461	(*b*)	....	67, 080	44, 581. 068
1897..	86, 720	57, 633, 861	751	499, 311	640	425, 510	(*b*)	....	88, 111	58, 558, 682
1898..	119, 190	79, 213, 953	518	343, 928	*d* 640	425, 510	669	*e*$444.617	121, 017	80, 428, 008

a Includes Madagascar, Algeria, and the French Soudan.

b Previous to 1898 Rhodesia and Mozambique together produced 289 kilograms, fine, included in the Transvaal returns.

c Previous to 1897 the only figures obtainable were those for 1892, Madagascar only.

d Product for 1897.

e Includes Mozambique, Cape Colony, and Zululand.

THE TRANSVAAL.

The Transvaal product was divided between the Witwatersrand, with 4,295,609 ounces, crude, and other districts, with 259,413 ounces, crude, as against 3,034,679 and 255,041 ounces, respectively, in 1897; an increase for the Rand of 1,260,930 and for the others of 4,372 ounces.

According to the tenth annual report of the Chamber of Mines of the South African Republic, the total production of the Transvaal in 1898 was divided as follows:

District.	Quantity.		Value.	
			Commercial.	Coining.
	Crude ounces.	*Fine ounces.*		
Witwatersrand	4, 295, 609	3, 614, 385	$73, 685, 506	$74, 715, 969
De Kaap	89, 760	75, 329	1, 531, 935	1, 557, 189
Lydenburg	108, 884	94, 973	1, 909, 508	1, 963, 266
Klerksdorp	59, 722	46, 415	933, 974	959, 483
Other districts	1, 047	873	17, 860	18, 046
Total	4, 555, 022	3, 831, 975	78, 078, 783	79, 213, 953

SUMMARY.

Witwatersrand	4, 295, 609	3, 614, 385	73, 685, 506	74, 715, 969
All others	259, 413	217, 590	4, 393, 277	4, 497, 984
Total	4, 555, 022	3, 831, 975	78, 078, 783	79, 213, 953

The number of kilograms, fine, corresponding to the coining value is 119,190. The crude ounces average 0.841½ fine.

The following table shows the annual production of the Witwatersrand, by months, since 1894:

Month.	1894.	1895.	1896.	1897.	1898.
	Ounces.	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*
January	149, 814	177, 463	148, 178	209, 832	313, 827
February	151, 870	169, 295	167, 018	211, 000	297, 976
March	165, 372	184, 945	173, 952	232, 066	325, 908
April	168, 745	186, 323	176, 707	235, 698	335, 125
May	169, 773	194, 580	195, 008	248, 305	344, 160
June	168, 162	200, 941	193, 640	251, 529	344, 671
July	167, 953	199, 453	203, 873	242, 479	359, 344
August	174, 977	203, 573	213, 418	259, 603	376, 912
September	176, 707	194, 764	202, 561	262, 150	384, 080
October	173, 378	192, 652	199, 889	274, 175	400, 791
November	175, 304	195, 218	201, 113	297, 124	393, 311
December	182, 104	178, 428	206, 517	310, 712	419, 504
Total	2, 024, 159	2, 277, 635	2, 281, 874	3, 034, 673	4, 295, 609

Since the beginning of gold mining on the Rand, the total production of gold has amounted to 18,469,219 ounces.

The following table shows the annual output of the mines from the opening till the end of 1898:

GOLD PRODUCTION OF THE WITWATERSRAND.

Year.	Quantity.	Year.	Quantity.
	Ounces.		*Ounces.*
1887	23, 125	1893	1, 478, 477
1888	208, 122	1894	2, 024, 164
1889	369, 557	1895	2, 277, 640
Estimated unrecorded production, 1887, 1888, 1889	42, 000	1896	2, 280, 892
1890	494, 817	1897	3, 034, 679
1891	729, 268	1898	4, 295, 609
1892	1, 210, 869	Total	18, 469, 219

The following is a summary of the increases during 1898:

Items.	Quantity.		Value.
	Oz.	*dwt.*	
Mill	770, 152	0	£2, 893, 531
Tailings	395, 109	3	1, 339, 651
Concentrates	12, 079	10	26, 138
Slimes	78, 879	7	282, 220
Other sources	4, 710	4	16, 220
Total	1, 260, 930	4	4, 557, 760

Total yield per ton of ore crushed, 9.85 pennyweights (fine gold), equal to 41s. 3d.

Other increases:	Tons.
Tons milled	2, 006, 091
Tailings treated	1, 382, 932
Slimes	548, 611

Increased average number of stamps dropping per day, 1,198.
Increased efficiency of stamps per day, 0.15 ton.
Increase in value of mill yield, 6d. per ton.
Increase in value of yield of tailings, 11d. per ton.

The other districts of the Transvaal show an increase in total production of 4,371 ounces 13 pennyweights, made up as follows:

	Oz.	dwt.
Increases:		
Lydenburg	57,941	16
Other districts	905	19
	58,847	15
Decreases:		
De Kaap	24,211	17
Klerksdorp	25,059	8
Zoutpansberg, etc	5,204	17
	54,476	2
Net increase	4,371	13

Of the increase 63.5 per cent came from the mills, 29.4 per cent from tailings, 6.2 per cent from slimes, and 0.9 per cent from concentrates and by-products. The mills crushed 37.7 per cent more ore than in 1887, and produced 40.6 per cent more gold than in that year, showing the ore worked to be richer. The amount of tailings treated increased 39.2 per cent, producing 44.8 per cent more gold, showing greater efficiency in the cyanide process.

For the first time slimes appear separately in the returns. Many machines for treating them began work during the year, producing altogether 78,887 ounces, valued at £282,220.

The number of companies at work has increased from 69 to 77 (monthly average 63.5), with 4,765 stamps, against 51 companies with 3,567 stamps in 1897. The work done has averaged 4.68 tons per day per stamp, against 4.53 tons per day per stamp in 1897.

Altogether 8,965,960 tons of ore were extracted, of which about 1,634,514 were rejected as worthless. In some cases as much as 40 per cent was rejected. This was due to the employment of compressed-air excavators, which of course lack the intelligence of workmen in selecting ore for extraction. It is, however, far cheaper to reject low-grade ore even after extraction than to mill it.

The ore milled amounted to 7,331,446 tons. The yield per ton from all sources was 11.718 pennyweights per ton, an increase of 0.32 pennyweight over the preceding year. This increase was due to the more careful selection of ore and to the treatment of slimes.

Most of the increase was due to "deep level" mines, in working which 11 companies were engaged. The amount of ore milled from such mines was 1,403,455 tons, producing 916,194 ounces, or 22.3 per cent of the whole. The ore from deep levels has averaged 13.63 pennyweights, against 11.718 pennyweights of the whole Rand.

There were employed in the mines, on an average, 8,131 whites and 65,944 natives. In the mills there were employed 1,723 whites and 7,410 natives, the total increase over 1897 being 1,171 whites and 12,878 natives.

GOLD IN THE TRANSVAAL.

Consul Macrum sends from Pretoria, April 18, 1899, copies of the report of the chamber of mines on the production of gold in the Transvaal for the month of March, 1899.

The following extracts are from the report:

> Yesterday saw one of the largest increases over the previous month ever recorded in the Rand's history. An increase of close upon 40,000 ounces is a marvelous achievement. The Transvaal production of the precious metal, when expressed in ounces, is now getting within measurable distance of 500,000, yesterday's declaration being within 36,000 of that aggregate. The March yield is 23,361 ounces better than the declaration of December, 1898—a month which is invariably good. The Rand output itself was 37,240 ounces in advance of the February figure and 22,074

ounces higher than the record of December. Yesterday's output was well-nigh double the figures of two years ago; it was, indeed, 115,500 ounces in advance of the showing of March, 1898. We can not compare these results to those of any other gold fields, for they have no analogue. The Rand stands preeminent, singular, and will continue so to stand, far in advance of all rivals.

Mr. Macrum adds:

The value of these 464,036 ounces of the precious metal was £1,763,336 ($8,584,666), and the average exports of gold from the ports of South Africa amount now to about £430,000 ($2,092,595) each week.

WEST COAST OF AFRICA.

The product of the west coast of Africa is assumed to equal the amount of its bullion exports to Great Britain during the year.

Gold Imported into England from the West Coast of Africa since 1889.

Year.	Weight.		Value.	Weight.
	Standard (916$\frac{2}{3}$).	Fine.		
	Ounces.	*Ounces.*		*Kilograms.*
1889	44, 554	40, 841. 17	$844, 262	1, 270
1890	37, 242	34, 138. 50	705, 705	1, 062
1891	45, 212	41, 444. 33	855, 730	1, 289
1892	53, 402	48, 951. 83	1, 011, 924	1, 523
1893	34, 286	31, 429. 00	649, 695	977
1894	30, 326	27, 798. 83	574, 653	865
1895	34, 916	32, 006. 33	661, 630	995
1896	33, 138	30, 376. 50	627, 938	945
1897	26, 350	24, 154. 17	499, 311	751
1898	18, 150	16, 637. 50	343, 928	518

The principal gold mines are situated at Wassau at the western end of the British protectorate.

The Consular Journal and Greater Britain, London, December 1, 1898, quotes the following from a report of the acting colonial secretary:

> The gold-mining industry is carried on chiefly in the western district. Three or four companies are doing steady work. The gold reefs of the mining district have been declared by experts to be similar to those of Johannesburg. The industry has been hampered by the difficulty of transporting the necessary machinery from the coast to the mines, but the Government is constructing a railway from the coast to the mining districts in the neighborhood of Tarquah, and when this is completed it is confidently anticipated that the gold industry will receive an impetus which will result in the development of existing mines and the opening of new ones.

THE GOLD MINES OF THE GOLD COAST, AFRICA.

To obtain a thorough idea of the value of the Gold Coast as a gold-producing area it is necessary to go back to its early history. For centuries this vast country (north and south of the great range of the Kong Mountains) poured into Europe millions of pounds' worth of the precious metal, and coming down to Bosman's time we find six distinct areas in and about the Gold Coast supplying the yellow ore. These were Denkira, including Wassau, Encasse, Juffer and Commendah Acanny, Akim, Ashanti, Adansi, and lastly, Aowin.

As the old Dutch traders were most assiduous in securing as large a supply as possible of the gold then produced, it may be fairly assumed that what Bosman says is correct. The Denkiras at this period were a very powerful race, possessed of vast treasures of gold, partly obtained from their own mines, and from plunder and commerce with the interior tribes. The best gold was found in or between particular hills, where the natives dug pits and separated it by washing from the earth thus obtained.

All this points to the fact that many of the present hills and mountains in the interior of the Gold Coast must form the sources from which these supplies were then obtained, and that in spite of the quantities that have been obtained in the past, there must still remain in the interior of the country stores of the precious metal waiting to be discovered and worked by European energy and enterprise.

In later times the known gold-bearing areas became reduced to three, Wassau, Akim, and Ashanti, with its powerful rival, the Gamau country, none of which have ever been properly developed, and which became practically forgotten after the opening up of California and Australia. After the lapse of many years attention is again being turned toward West Africa as a gold-producing area.

Akim was and has continued to be the gold port of the colony, situated as it is to the south of one of the best gold-producing countries, Wassau, where most of the present gold mines are situated, and many attempts at development are taking place.

Tarkwa, the present center of the mining industry of the colony, is situated in Wassau, some 50 miles from the coast, traveling by bush and river. The Government railway shortly to be opened to Tarkwa from Sekondi shortens the distance to 40 miles.

The fact is that all the countries of the present day—Ashanti, Sefwi, Adansi, Denkira, Assin, Wassau, and Ahanta—which form the western part of the Gold Coast, form one of the most promising of the gold-producing areas of the colony, lacking only transport and capital to place their wealth before the European market.

Since its first discovery by the Europeans, it has been roughly estimated that from £600,000,000 to £700,000,000 of gold have been produced from the Guinea coast, and in its flourishing days the town of Elmina alone annually exported £3,000,000 worth of the precious metal. Early in the nineteenth century the export became reduced to slightly under £500,000, about 120,000 ounces, and averaged this amount for nearly half a century. Early in the sixties this export fell to under 50,000 ounces, constantly varying between that and the 120,000 ounces of the earlier part of the century. This became again reduced in the seventies and the eighties of the present century to an annual average of about £120,000 sterling, which is about the output at the present time.

Generally speaking, gold deposits are stated to extend from the French boundary on the west to the Volta River in the east, a direct distance of some 240 geographical miles, and inland to a distance of about 100 miles. They may extend east of the Volta, but that they extend for more than 100 miles inland is positively asserted by a host of authorities. Mr. Macdonald, in his book, states that the country near the town of Obo in Qwahu, where the river Prah has its source, is honeycombed with native shafts, and when there early in 1897 he was offered £27 worth of gold dust by the natives in exchange for small English silver, which is much wanted in these interior provinces.

Very little, however, will be done in the way of mining in the Gold Coast, particularly in these interior provinces, until some comprehensive scheme of roads and transport has been devised. What development can be expected in a country where head carriage forms the only means of transport and it takes ten days for a parcel of 60 pounds weight to reach Kumasi from the coast at a minimum cost of 12s. 6d. for carriage, a rate equal to nearly £25 for a ton? Moreover, and more important still, under existing circumstances, on arrival on the coast everything is transferred to a surfboat for landing, and more often than not the goods are landed in the last breaker on the shore instead of upon dry land. Much damage and loss is the result, in addition to a great waste of time, which to a white man means loss of money.

Fortunately, however, the Government is now constructing a harbor and breakwater at Sekondi, along which vessels can very shortly moor and discharge their cargoes undisturbed by the long Atlantic swell. This also forms the terminus for the railway to Tarkwa, which will be opened within a few months.

The future of the Gold Coast lies in its commercial prosperity, and this can only be increased by greater attention to the mining capabilities of the colony and the production of timber and rubber. Large areas in the mining districts of Wassau should be cleared of vegetation and hydraulicked for the gold they contain. This should produce enough gold to pay for the railways necessary for the transport of heavy machinery in order to work the reefs that would be laid bare by the process previously referred to.

It must also never be forgotten in considering the past history of the Gold Coast and its future prospects that it is only since a very recent date that the colony has been under settled English government. It was not till 1872 that the Gold Coast colony first began to assume its present form as a Crown colony and protectorate, and at that time practically only the coast line along the seashore was under English rule. Since that date the interior districts have been opened up until, as a result of the last Ashanti war, in 1895–96, the British protectorate now extends to the hinterland of the northern territories.

The great importance, commercially speaking, of the extension of settled government into the interior can hardly be overrated. One practical result has ensued within recent years—the disappearance in great part of the foolish superstitions of the natives in the gold-bearing districts. Formerly the natives were afraid of the gold being worked by civilized people. They insisted that their fetish prohibited any white man or, for the matter of that, any black man in white man's clothes, going near or finding out the real source of their native mines; nor would they dig too deep for fear of the gold running away; and the result is that many extensive gold fields of the colony remain undeveloped. Nowadays, and especially within the district of Wassau, the native opposition has not only disappeared, but the native chiefs themselves are cooperating with the native traders in the principal towns in inviting and assisting Europeans to open up and develop the gold deposits. Native skilled labor can also be obtained to work in the mines, and the recent development of the Tamaco mine within the past twelve months entirely by native engineers with the aid of English capital provided by an English company is the best proof of the change which has been brought about.

Much difference of opinion exists with regard to the general unhealthiness of this part of the world. That the country has been unhealthy for the continued residence of Europeans admits of no question, and that it will remain forever so, more or less, while only a narrow strip of low-lying malarious coast line forms the country selected for the habitations of the white traders and officials compelled to reside there, admits of little doubt. In the highlands of the interior, however, there is reason to believe that it will be possible for white men to live under the conditions and with the precautions proper to a tropical climate.

Several companies are at present operating mines on the coast. The Wassau Gold Mining Company has been at work for several years in the Wassau district, and in 1898 its mill worked 6,000 tons of ore with an average result of 1.4 ounces to the ton. The Taquah and Abosso Gold Mining Company has a 30-stamp mill, and since 1894 has worked 23,929 tons of ore with a yield of 19,703 ounces of gold. There are several other companies whose mines are still in the development stage.

In Akim and Ashanti a number of mining areas have been taken up, but none of the mines have yet reached the period of regular production.

FRENCH COLONIES IN AFRICA.

MADAGASCAR.

There are no available figures representing the gold product of Madagascar previous to 1892. In that year the French ministry of public works estimated it at 261 kilograms, fine, with an ascribed value of $173,460. In 1897 the same bureau, as published in Statistique de l'Industrie Minerale, placed the export from the island in that year at 601 kilograms, with a value of $399,510. No figures for 1898 being available, those for 1897 are repeated.

SOUDAN.

The gold output of the French Soudan was estimated in 1897, by the ministry for the colonies, at 500,000 francs, corresponding to 39 kilograms, fine, with a value in United States money of $26,000.

ALGERIA.

The output of silver in Algeria in 1897 is stated by Ambassador Porter to have been 325 kilograms, with a commercial value of 33,000 francs, corresponding to $6,369 commercial, and to $13,507 United States coining value.

CONGO STATES.

The Dictionaire du Commerce, of Paris, says that gold exists in small quantities in the vicinity of the Nyanga River, in the French Congo.

RHODESIA.

Rhodesia consists of two provinces, Mashonaland and Matabeleland. With it is included in this report the contiguous Portuguese province of Mozambique.

From the report of the Rhodesian chamber of mines it appears that before September, 1898, the total product of the two provinces was 7,169 ounces or 189 kilograms, fine, valued at $126,243, most of it from Mashonaland. On that date the Matabele mines began to work, and during the remainder of the year produced 18,085 ounces, or 477 kilograms, fine, valued at $315,915.

C. Arnold, secretary of the chamber, writes this Bureau, February 18, 1899, that political disturbances, cattle diseases, and other causes have retarded production. At that time 4 mines were at work, and 10 more were expected to produce during 1899. The values given in the report of the chamber are over the plates only. In addition, the tailings are valued at 3½ to 5½ pennyweights per ton. A cyanide plant is in course of erection.

The Statist, of London, gives the following statistics in regard to the four Matabeleland mines:

PRODUCTION IN RHODESIA.

Mine.	November, 1898.	December, 1898.	January, 1899.	Total.	Average per ton.
	Ounces.	*Ounces.*	*Ounces.*	*Ounces.*	*Dwts.*
Bonsor	1, 670	1, 825	1, 944	5, 439	10. 15
Dunraven	1, 180	1, 187	1, 191	3, 558	12. 26
Geelong	1, 101	1, 112	1, 071	3, 284	10. 14
Selukwe	1, 277	1, 273	1, 396	3, 946	14. 19
Total	5, 228	5, 397	5, 602	16, 227	11. 37

About three years ago we ventured to predict that the output of gold from the Transvaal would within no very distant period be in the neighborhood of fifteen millions sterling. We fixed that figure as a round amount. When we made that prediction a good many of our friends, and certainly many who did not consider themselves our friends, regarded it as altogether visionary. We ourselves did not look for the realization of such a figure within the space of three years. But already the return of 1898 shows an excess over the fifteen millions. And this is not all the story, for expansion in the area producing gold of the Randt is going on, and more deep levels will in the course of time come to be added to the producers.

In the present day many people tenaciously adhere to the view that Rhodesia will never figure largely as a gold producer. We, for our part, have believed, and continue in the belief, that steady progress will be made in the gold output, now that a start has been made; but with Rhodesia, as with the Transvaal, there will be necessity for great discrimination in making investment, and companies that may appeal to the public for capital will have to make known the data upon which the promoters rely for success.

* * * * * * *

THE GOLD MINES OF RHODESIA.

[From the Economist, May 27, June 3, and June 10, 1899.]

There is no doubt that Rhodesia is about to become ere long one of the standard gold-producing countries of the world. Although I arrived in Bulawayo last April a decided pessimist about the mining resources of the country, a residence there of a few weeks only, which included a series of flying visits to the principal mines and mining districts, convinced me of the really satisfactory future in store for the Rhodesian gold mines. I did not penetrate into Mashonaland, which forms the eastern section, as does Matabeleland the western, of Rhodesia. About the former country I may say, at second hand, that its geology is the same as that of Matabeleland, and eventually it should prove equally successful, but owing to its previous lack of a railway it has as yet received almost no development. In Mashonaland the Panhalonga, Rezende, Beatrice, and the Glendara claims of the Mashonaland Consolidated Company are well spoken of, besides others, and now that the Beira railway has been extended to Salisbury we may expect more exploration, and probably the announcement of more favorable results.

The construction of a railway to Bulawayo in 1897 lent great impetus to the development of mining in Matabeleland, and already a considerable amount of good work has been accomplished. Prospecting has been enormously facilitated by the existence of the ancient workings.

ANCIENT WORKINGS.

These, of which a number give evidence of having been in use not more than two or three hundred years ago, are an almost unerring guide to the present-day miner and engineer. If the working continues almost uninterruptedly for, say 1,500 or 2,000 feet, the chances are that exploration work will prove the existence beneath of a long and payable chute of gold. On a good chute of this character the ancients have worked with their primitive appliances, in cases, to 250 feet deep. If the workings on the surface are not of great extent, and take the form of a series of pits rather than one long unbroken stope, the owner of such a claim knows that there exists beneath him a more doubtful mining problem, and that the chutes are probably narrow and not in payable occurrence. The very poor or barren reefs, of which a number exist, have been left alone altogether by the ancients, and so high is their judgment held to-day that no work has yet been done in Rhodesia on any reef which they had not already worked on.

Of course most of the longest runs of old workings have been already chosen out for development, and it is quite possible that all the best reefs in the country are now in course of being opened up. But even if this is the case, the collective result to date is highly satisfactory. I estimate that there are in Rhodesia from 50 to 100 old workings of what I may describe as the first class, and taking into account the way most of these are developing, and the decided possibility from the others not yet started on, I think it possible to form an estimate. This estimate is to the effect that by the end of 1902 there will be in Rhodesia, either at work or developing, but proved, 30 payable mines, of which, although half will not be able to support more than 10 or 15 stamps, the remainder will provide payable ore for from 20 to 100 stamps.

This prospect, which I can not think an exaggerated one, is enough to place Rhodesia in a recognized position among leading quartz-mining countries.

GEOLOGICAL.

As to geology, there is considerable variety. Most of the reefs lie in schist, but of these some appear to be true fissures, and other are apparently interstratified, thus running parallel to the formation of the schistose rock. Such lodes lie, as for instance the Geelong reef, between schist and granite. Others lie in solid granite, but I fancy that these last are generally found to pinch out in depth. There is no reason that they should, however. Generally speaking, whether the reefs lie as fissures or beds, or whether in schist or granite, or between both, I see no reason to think that those which are now the most highly developed, and which may be called the standard lodes of the country, will not continue in depth, nor do I think that they will lose their value.

GWANDA DISTRICT.

Turning to the mines and mining districts of Rhodesia, or rather of Matabeleland, to which latter country alone my actual experience extends, I consider that the Gwanda district, 100 miles southeast of Buluwayo, is the most promising in the country. Here the Matabele Gold Reefs and Matabele Mines, two of the exploration companies which are so much in evidence in Rhodesia, own the best things. They control jointly the Geelong, West Nicholson, and Eagle-Vulture mines, and a group of yet unfloated mines known as the Olympus, Jessie, Ancients, Blanket, and Marmion, most of which promise well. Other mines in the Gwanda district are Antenior, V. V. Gwanda, which is developing four mines, of which the Australian and Imami are most promising; Gwanda Consolidated, developing several mines, and the Sibewa mine, belonging to the Rice-Hamilton Company. There are other promising claims in the district, too, which in my hurried visit thither I did not even hear the names of. No doubt the shareholders in the Matabele Gold Reefs and Matabele Mines are justified in looking forward to several years of prosperity and of several successful new flotations, and the high prices that the shares of these companies stand at are to a certain extent justified.

BELINGWE DISTRICT.

To the northeast of Gwanda is the Belingwe district, as yet not greatly developed, but not unpromising on the amount of work already done. The Confidence mine here is being developed, and the Dobie claim of the Consolidated Belingwe is opening out fairly well.

BULUWAYO DISTRICT.

Near Buluwayo is the Christmas Reef mine, shut down as unpayable. There is also the Criterion mine, floated by Rhodesia, Limited. Here about £30,000 has been spent, chiefly on surface equipment, rock drills, a large dam, and also on the development, to 250 feet depth, of several parallel reefs. These reefs are all patchy, and so far the Criterion has not yet been proved payable. Active development is still in progress, and here and there small, rich patches of ore are being found.

To the southeast of Buluwayo are the Red and White Rose and Matabele Sheba mines, both of which are considered promising properties.

SEBAKWE DISTRICT.

The Sebakwe district, north of Gwelo, is well thought of. Here is located the Globe and Phœnix mine, the richest yet found in Rhodesia and apparently of a permanent value. * * * Here there are two lines of reef, the Globe and Phœnix, running at right angles to each other, at a distance apart of nearly half a mile. In each "series" there are two reefs, four in all, of which only one on each line has as yet been developed.

SELUKWE DISTRICT.

The Selukwe district is 30 miles south of Gwelo and has already in the Bonsor, Selukwe, and Dunraven three gold-producing mines.

Bonsor.—Issued capital, £220,000. This reef apparently extends along the great stretch of 6,000 feet. Not all of this, of course, is payable, nor has the whole distance been developed yet, but there is reason to think that most of it will yield a steady, low-grade, payable return, and that in depth this will still continue.

Selukwe.—Issued capital £300,000. This is a fine mine. The reef, 3 feet thick, lies nearly vertical between extraordinary well-defined walls, and is regular in size and value wherever opened.

Dunraven.—Issued capital, £180,000. This is essentially a small mine, and, owing to geological disturbances likely to be met with at a slightly greater depth, owing to an extraordinary right-angled turn in the formation, the future is somewhat uncertain.

I shall finish this account of Rhodesian gold mining with a rough classification of values of mines. As regards the numerous exploration and finance companies, which between them own nearly all the old workings in the country, and which accordingly control the future to a great extent, I can not venture a valuation. The position of these companies is intimately connected with the position and future of the British South Africa Company.

Chartered Company.—The Chartered Company has allowed nearly all its most valuable assets to pass into the hands of the exploration and finance companies. These hold all the old workings (therefore all the payable gold reefs in the country) and also own enormous stretches of the best agricultural land, most of the somewhat scarce water frontage, and the coal areas and forests. For all these, its best assets, the Chartered Company, having disposed of them, receives no revenue to speak of. Certainly it receives a large block of shares in every subflotation, but these are only issued and probably only marketable at certain seasons of excitement on the London Stock Exchange, and during the long intervals the Chartered Company receives no regular revenue to place against its heavy expenditure. It has framed its mining law so that the owner of a claim is entitled to work to any depth or any direction all ore which may outcrop on the claim. There are thus no deep level areas in Rhodesia, and the Chartered Company has thus, in a purely gratuitous manner, deprived itself of about 80 per cent of what it might legitimately have claimed as license money. This in itself would have formed a permanent income of great value. Again, to suit the capitalist cliques who control the exploration companies, the conditions of leases are absurdly easy. Thousands of claims, old workings, and such like can be held upon payment of almost nominal fees. There is no labor clause. Thus all the best assets in the country are tied up in the control of few capitalists; they can be kept unproductive at practically no expense until the London market allows of a season of feverish activity, and thus the country is almost entirely closed to the poor man—the prospector, the small farmer, and the pioneer. It may seem paradoxical, but I consider that the Chartered Company, although it has dealt with its best assets entirely for the benefit of the capitalist rather than the poor man, must still do very well out of its share in flotations.

A ROUGH CLASSIFICATION OF RHODESIAN MINES.

First class: Selukwe, Globe and Phœnix, West Nicholson, Bonsor, and Geelong.

Second class: Eagle-Vulture, Antenior, Dunraven, Rezende, Panhalanga, Beatrice, Morven, Matebele-Sheba, Nelly and Pioneer, Red and White Rose, and Surprise.

Third class: Chicago-Gaika, Criterion, Confidence, Christmas Reef, and Monarch.

MOZAMBIQUE.

So far as is known the only gold produced in the Portuguese province of Mozambique is that from the Mozambique Consolidated mine at Massi-Kessi. According to a report to the shareholders,[1] this mine has produced from its opening to the end of November, 1898, 5,311 ounces of gold, valued at $99,863, corresponding to 153 kilograms, fine. Monthly reports published throughout the year show that at least 53 kilograms of this was produced in 1898, the balance probably having been produced before then.

Thus the product of Rhodesia and Mozambique combined has been as follows: For 1898, 530 kilograms; for previous years, 289 kilograms.

---

[1] Mining World, February 25, 1899, p. 322.

CAPE COLONY.

Cape Colony has one gold mine, which, the United States consul at Cape Town states, produced 104 kilograms, fine, valued at $69,118 in 1898.

ZULULAND.

Zululand, which is a colony of Natal, is stated by the report on mines and quarries of the British Empire to have produced 35 kilograms of gold, valued at $23,261, in 1897. The same result is assumed in 1898.

GERMAN EAST AFRICA.

[Translation; Die Glükauf, Essen, January 28, 1899, pp. 89, 92.]

Gold has recently been reported found to the south of Victoria Nyanza, in the Usinda territory. The investigations are not yet complete, but no unfavorable signs have occurred. The gold is found in quartz reefs in a primitive slate formation which elsewhere in Africa is often richer than is the early gneiss formation. * * * Gold will probably next be announced from one of the high Kinga mountains extending from Nyassa to Victoria Nyanza.

ARGENTINA.

United States Minister Buchanan, at Buenos Ayres, writes, under date of April 25, 1899, that there are no statistics for 1898 available as to the product of either gold or silver in Argentina, but that neither will be above $10,000. No report on the mines of the country is issued.

He says that about $10,000 worth of silver ore was exported in 1898, and as Argentina does not coin either gold or silver, and does not refine silver ore, this is supposed to represent the full value of the silver mined.

In 1897 the gold product of the country was placed at $137,694, and it was expected to be increased in 1898 by the opening of new mines. The cause of the decrease, as stated by Minister Buchanan, is not explained.

In 1897 the silver product was placed at near half a million dollars (coining value), but a heavy decrease in 1898 was anticipated, important mines having closed down.

The chairman of the Argentine Concessions, Limited, reported to a stockholders' meeting, held in London last March, that the company had extracted 1,120 ounces of gold during the first nine months of 1898 and had obtained 607 more from October, 1898, to March, 1899. The product from this one mine for 1898 is therefore about 1,420 ounces or about 440 kilograms, valued at $29,252, nearly three times the total product of the country as estimated by Mr. Buchanan.

In view of these facts the product for 1898 is placed at the same figures as in 1897—viz, $137,694 for gold, and $495,811, United States coining value, for silver.

AUSTRALASIA.

The total gold production of Australasia in 1898 was 3,137,644 ounces, or 97,593.82 kilograms, fine, valued at $64,860,854. This is 22½ per cent of the world's product, and is an increase over 1897 of more than $12,000,000.

As has been customary for some years, this Bureau was furnished with the following information by the Melbourne mint:

GOLD IN AUSTRALIA.

Colony.	Ounces.
New South Wales	340,494
New Zealand	280,175
Queensland	920,048
South Australia *a*	49,372
Tasmania	69,549
Victoria	837,258
West Australia	1,050,183
Total	3,547,079

a Quantity received at Sydney and Melbourne mints.

In 1893 this Bureau was officially informed that the Australasian gold was 0.920 fine, and since then has accepted that percentage year by year, in order to obtain the fine ounces. From the remarks of the Government statistician at Sydney, in his annual—The Seven Colonies of Australia—it seems that this percentage is now too high.

A letter on the subject, addressed to the deputy master of the Melbourne mint, brought the following reply:

ROYAL MINT, MELBOURNE, *July 3, 1899.*

SIR: In reply to your letter of the 22d May last, I have the honor to inclose a table showing the gross weight of all gold received at this branch, and the average fineness of the same, for the years 1896, 1897, and 1898.

I regret that I am unable to give you the fineness for each colony separately, but the figures given include gold received from Victoria, Tasmania, South Australia (including Northern Territory), West Australia, and New Zealand.

I have the honor to be, sir, your obedient servant,

ROBERT BARTON,
Deputy Master.

The DIRECTOR OF THE MINT,
Washington, D. C.

The following table was inclosed:

RETURNS SHOWING THE GROSS WEIGHT AND AVERAGE ASSAY OF GOLD RECEIVED AT THE MELBOURNE BRANCH OF THE ROYAL MINT DURING THE YEARS 1896–1898.

Years.	Ounces.	Assay.		
		Gold.	Silver.	Base.
1896	1,186,851	924.1	50.3	25.6
1897	1,380,364	912.3	56.7	31.0
1898	1,514,269	903.4	61.5	35.1

Mr. Von Arnheim, deputy master at Sydney, sends the following letter on the same subject:

ROYAL MINT, *Sydney, July 19, 1899.*

SIR: In reply to your letter of May 22 last, I have the honor to subjoin, for your information, a statement of the decimal fineness of gold received for coinage during the years 1896, 1897, and 1898 from each of the colonies indicated:

Colony.	1896.	1897.	1898.
New South Wales	0.8783	0.8727	0.8619
Queensland	.8438	.8032	.8422
New Zealand	.9695	.9645	.9589

As only a small amount of western Australian gold reaches Sydney, the figures for that colony are not available, and it may be pointed out that much of the New Zealand bullion sent to this branch of the mint has been refined previous to export.

I have the honor to be, sir, your obedient servant,

E. H. S. VON ARNHEIM, *Deputy Master.*

The DIRECTOR OF THE MINT,
Washington, D. C.

The following communications, regarding the fineness of west Australian gold, were received at this Bureau:

ROYAL MINT, VICTORIA,
Melbourne, July 26, 1899.

SIR: I have the honor to acknowledge receipt of your letter of the 13th instant. In reply, I regret to inform you that I am unable to give you the information you require.

The average assay of western Australian gold received here has never been taken out, and in view of the large number and variety of the deposits received, to do so now would involve an immense amount of clerical work.

I have the honor to be, sir, your obedient servant,

ROBERT BARTON, *Deputy Master.*

The UNDER SECRETARY FOR MINES,
Perth, Western Australia.

DEPARTMENT OF MINES,
Perth, August 9, 1899.

SIR: I am directed to acknowledge receipt of your letter of 22d May last, addressed to the right honorable the Premier, and which has been referred to this department for attention.

As this colony was not provided with a mint during the years referred to by you, of which you desire to know the fineness of western Australian gold, communication was made with the Melbourne mint authorities, requesting them to supply you with the information, and I attach a copy of their reply. I regret that I can not supply you with the information you require. A mint has, however, recently been established in this colony, and after a few months we shall be in a position to give you a correct estimate of the fineness of the gold produced.

I have the honor to be, sir, your obedient servant,

L. T. CROCKETT,
For Under Secretary for Mines.

The DIRECTOR OF THE MINT,
Treasury Department, Washington, D. C.

The following table was compiled from the official figures for the colonies given in the above letter, and for the remainder of the colonies from the report of the Sydney mint, printed in the report of the master of the British mint for 1898, which gives the amount of gold received by it from each province and the value thereof—information that is wanting in the report of the Melbourne mint:

Colony.	1896.	1897.	1898.
New South Wales	$5,223,506	$5,296,762	*a* $6,066,605
New Zealand	5,068,109	4,770,158	5,259,183
Queensland	10,906,493	12,424,861	*a* 16,017,860
South Australia	548,742	462,575	*b* 530,811
Tasmania	1,156,154	1,407,591	*c* 1,267,618
Victoria	15,671,824	15,821,303	16,298,045
West Australia	5,201,354	12,482,461	19,420,732
Total	43,776,182	52,665,711	64,860,854

[a] Calculated according to fineness reported by deputy master, Sydney mint.
[b] Calculated according to average fineness (0.5201) of bullion deposited at Sydney mint during 1898.
[c] Calculated according to average fineness (0.8817) of bullion deposited at Sydney mint during 1898.

In accordance with these corrected figures the gold product for 1896–97 is changed in the table of the world's production in this report.

The following table, showing the total number of ounces, crude, produced (by colonies) in Australasia since 1851, is submitted:

ESTIMATED PRODUCTION OF CRUDE GOLD IN AUSTRALASIA SINCE THE YEAR 1851.

[From returns furnished by the Melbourne mint.]

Year.	New South Wales.	New Zealand.	Queensland.	South Australia.*a*	Tasmania.	Victoria.	Western Australia.	Total.
	Ounces.	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*
1851–1884, inclusive	9,596,642	10,552,279	4,529,280	154,628	378,413	53,023,985	....	78,235,227
1885	103,736	237,371	310,941	18,327	37,317	735,218	....	1,442,910
1886	101,416	226,668	340,998	21,115	31,014	665,396	302	1,386,909
1887	110,288	203,869	425,923	37,371	41,751	617,751	4,873	1,441,826
1888	87.503	201,219	481,643	16,763	39,610	625,026	3,493	1,455,257
1889	112,948	203,211	739,103	20,833	33,050	614,839	15,493	1,739,477
1890	127,460	193,193	610,587	24,831	20,510	588,560	22,806	1,587,947
1891	153,335	251,996	561,641	28,700	48,769	576,399	30,311	1,651,151
1892	156,870	237,392	605,612	38,974	43,278	654,456	59,548	1,796,130
1893	179,288	226,811	616,940	33,820	37,687	671,126	110,891	1,876,563
1894	324,787	221,615	675,000	35,844	57,873	716,955	207,131	2,239,205
1895	360,165	293,491	623,000	47,343	59,964	740,086	231,513	2,355,562
1896	296,071	263,722	638,000	29,004	62,586	805,087	281,265	2,375,735
1897	292,217	251,645	807,928	29,764	60,646	812,765	674,994	2,929,959
1898	340,494	280,175	920,048	49,372	69,549	837,258	1,050,183	3,547,079
Total	12,343,220	13,844,657	12,886,644	586,689	1,022,017	62,684,907	2,692,803	106,060,937

a Quantity received at Sydney and Melbourne mints.

SILVER.

The value of the silver production of Australasia has always been perplexing. The amounts forwarded to this office by the Melbourne mint were not fine, and the values given included the value of the lead and copper and other minerals in addition to that of silver; consequently they were too high.

This year, however, this Bureau has received from the Government statistician at Sydney an estimate of the fine weights and values of the production for the four years 1894, 1895, 1896, and 1897.

ESTIMATED PRODUCTION OF SILVER LEAD, SILVER ORE, AND SILVER BULLION IN AUSTRALASIA, TO THE YEAR 1898, INCLUSIVE.

[From returns furnished by the government of each colony.]

SILVER LEAD AND SILVER ORE.

Year.	New South Wales.		Queensland.		Tasmania.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
1851–1884, inclusive	9,507	£249,400	10,159	£117,957	....	....	19,666	£367,357
1885	2,286	107,626	3,787	63,711	....	....	6,073	171,337
1886	4,802	294,485	1,631	52.797	....	....	6,433	347,282
1887	12,530	541,952	2,183	80,092	....	....	14,713	622,044
1888	29,842	1,075,737	1,190	44,015	....	....	31,032	1,119,752
1889	81,544	1,899,197	1,104	61,500	....	....	82,648	1,960,697
1890	129,039	2,667,144	1,913	56,639	....	....	130,952	2,723,783
1891	147,780	3.484,739	875	21,879	....	....	148,655	3,506,618
1892	133,355	2,420,952	....	....	....	....	133,355	2,420,952
1893	214,620	2,953.589	....	....	15,710	£188,520	230,330	3,142,109
1894	180,326	2,195,339	....	....	20,572	246,864	200,898	2,442,203
1895	219,880	1,560,813	....	....	20,553	246,636	240,433	1,807,449
1896	286,736	1.758,933	....	....	21,167	229,662	307,903	1,988,595
1897	189,018	1,681,528	....	....	18,364	206,595	207,382	1,888,123
1898	398,568	1,644,777	....	....	15,320	188,892	413,888	1,833.669
Total	2,039,833	24,536,211	22,842	498,590	111,686	1,307,169	2,174,361	26,341,970

SILVER BULLION.

Year.	New South Wales.	New Zealand.	Queensland.	South Australia.	Tasmania.	Victoria.*a*	Total.
	Ounces.	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*	*Ounces.*
1851-1884, inclusive	935, 384	447, 923	....	....	....	280, 991	1, 664, 298
1885	794, 173	16, 624	....	....	....	28, 951	839, 748
1886	1, 015. 433	12, 108	....	....	....	26, 422	1, 053, 963
1887	177, 307	20, 809	....	....	....	26, 321	224, 437
1888	375, 063	403	....	....	....	27, 331	402, 797
1889	416, 895	24, 105	....	....	12, 000	30, 281	483, 281
1890	496, 552	32, 627	....	....	....	25, 966	555, 145
1891	729, 590	28, 023	....	10, 000	202, 797	30, 039	1, 000, 449
1892	350, 661	22, 053	203, 680	....	177, 445	35, 857	789, 696
1893	531, 972	63, 076	339, 267	....	....	40, 941	975, 256
1894	846, 822	54, 177	163, 410	....	....	50, 909	1, 115, 318
1895	550, 142	85, 024	223, 759	....	....	50, 647	909, 572
1896	202, 789	94, 237	279, 300	....	....	52, 975	629, 301
1897	150, 005	183, 892	234, 065	....	....	69, 633	637, 595
1898	533, 059	293, 851	104, 021	....	....	83, 756	1, 014, 617
Total	8, 105, 847	1, 378, 932	1, 547, 502	10, 000	392, 242	861, 020	12, 295, 543

a Extracted at Melbourne mint.

GOVERNMENT STATISTICIAN'S OFFICE,
Sydney, June 6, 1899.

SIR: In reply to your letter of March 1, I have the honor to inform you that it is impossible to obtain accurate figures as to the production of fine silver in the Australasian colonies. Taking, however, the results obtained by the largest mining companies, it is possible to eliminate the value of lead from the total production of silver and silver lead, and thus to arrive at an approximation which, it is believed, is fairly near the truth. This has been done for the four years 1894 to 1897, and the results are as appended.

The corresponding figures for 1898 will be forwarded to you so soon as they are available.

I have the honor to be, sir, your obedient servant,

J. R. MARTIN, *for Statistician.*

GEORGE E. ROBERTS, Esq.,
Director of the Mint, Washington, D. C.

PRODUCTION OF FINE SILVER.

Colony.	1894.	1895.	1896.	1897.
	Ounces.	*Ounces.*	*Ounces.*	*Ounces.*
New South Wales	13, 964, 300	9, 818, 900	10. 608, 900	10, 337, 900
Victoria	38, 100	45, 400	42. 500	50, 200
Queensland	134, 700	179, 600	191, 100	152, 900
South Australia	....	....	8, 600	9, 300
Tasmania	1, 787, 400	1, 362, 400	1, 324, 700	1, 200, 600
New Zealand	40, 800	63, 800	62, 900	127, 100
Total Australasia	15, 965, 300	11, 470, 100	12, 238, 700	11, 878, 000

By comparison of these two tables we obtain the fineness of the Melbourne figures for each colony.

Following is the estimated fineness for 1897 of the product, furnished by the Melbourne mint, as compared to the product given in fine ounces by the Government statistician:

	Fineness.
New South Wales	0. 750
Victoria	. 721
Queensland	. 653
Tasmania	. 716
New Zealand	. 691

If we will apply the above percentage to the mint figures for 1898, we will have the approximate fine output of Australasia in 1898, as follows:

FINE OUTPUT AND VALUE OF SILVER FOR 1898.

Colony.	Weight.		Value.	
	Crude.	Fine.	Coining.	Commercial.
	Ounces.	*Ounces.*		
New South Wales	14,099,681	10,574,761	$13,672,418	$6,239,109
Victoria	83,756	60,388	78,077	35,629
Queensland	104,021	67,926	87,824	40,076
Tasmania	1,558,039	1,115,556	1,442,335	658,178
New Zealand	293,851	203,051	262,531	119,800
Total	16,139,348	12,021,682	15,543,185	7,092,792

GOLD PRODUCTION.

[From Australian statistics; compiled by the acting government statist of Victoria.]

Name of colony.	Gold raised.					
	Prior to 1896.		During 1896.		Total.	
	Quantity.	Value.[a]	Quantity.	Value.[a]	Quantity.	Value.[a]
	Ounces.		*Ounces.*		*Ounces.*	
Victoria	60,155,107	£240,620,428	805,087	£3,220,348	60,960,194	£243,840,776
New South Wales	11,421,544	42,326,598	296,072	1,073,360	11,717,616	43,399,958
Queensland	10,558,606	36,955,121	640,385	2,241,137	11,198,991	39,196,258
South Australia[b]	500,440	1,873,211	31,504	112,759	531,944	1,985,970
Western Australia	797,691	3,031,230	[c]281,265	1,068,808	1,078,956	4,100,038
Total	83,433,388	324,806,588	2,054,313	7,716,412	85,487,701	332,523.000
Tasmania	832,805	3,179,326	62,591	237,574	895,396	3,416,900
New Zealand	13,050,213	51,351,002	263,694	1,041,428	13,313,907	52,392,430
Grand total	97,316,406	379,336,916	2,380,598	8,995,414	99,697,004	388,332,330

NOTE.—The figures for Victoria, New South Wales, and Queensland express the quantity and value of all the gold known to have been raised in those colonies since the period of its first discovery in Australia in 1851; those for South Australia are estimated chiefly from the returns of the Melbourne and Sydney mints, and partly from the export returns; those for New Zealand express the total gold entered for duty for export from the earliest period, and those for Tasmania express the quantity known to have been raised since 1866, there being no record of the gold raised prior to that period. There being no reliable returns of the gold raised in Western Australia, the yield prior to 1889 has been estimated roughly at 100.000 ounces, to which have been added the quantities which have since appeared in the export returns of the colony, which, however, are admittedly very defective. The yield in 1897 was as follows, so far as available: Victoria, 812,765 ounces; New South Wales, 292,217 ounces; Western Australia, 675,071 ounces.

[a] The purity and consequently the value of gold varies considerably in different localities. In Victoria the average value is set down as £4 per ounce, in Western Australia as £3 16s., and in Queensland as £3 10s. per ounce. Standard gold (i. e., 22 carats fine) is worth £3 17s. 10½d., and pure gold £4 4s. 11½d. per ounce.

[b] Including northern territory.

[c] Quantity declared for export only.

NEW SOUTH WALES.

[From The Seven Colonies of Australasia.]

In New South Wales the greatest annual production of gold occurred in 1852, soon after the first discovery of the precious metal, when it was valued at £2,660,946. The only other year which saw a production in excess of two millions sterling was 1862, the amount reaching £2,467,780. In 1874 the yield had fallen to 270,823 ounces, valued at £1,040,329, and thenceforth the industry declined considerably in importance, reaching its lowest point in 1888, when only 87,503 ounces, valued at £317,100, were produced. From that date a steady improvement took place, and in 1894 the Government took the step of furnishing large numbers of the unemployed with miners' rights and free railway passes and sending them to the abandoned alluvial fields as fossickers. This action, with the increased attention paid to quartz mining, nearly doubled the production, the quantity obtained during the year being set down at 324,787 ounces, valued at £1,156,717, while in 1895 the yield reached 360,165 ounces, of a value of £1,315,929, the highest since 1873. In 1896, however, this yield was not maintained, the production amounting to 296,072 ounces, valued at £1,073,360, making a total yield to date of 11,717,616 ounces, of a value of £43,399,958.

The principal seats of alluvial mining in the colony are the Bathurst and Mudgee districts and the country watered by the various feeders of the Upper Lachlan, and also the Tumut and Adelong and Braidwood districts, while the principal quartz veins are situated near Adelong, Bathurst, Armidale, Hill End, Orange, Parkes, and Wyalong. Besides the Mount Drysdale gold fields in the Cobar district, discovered in 1893, the most important find of recent years was made at Wyalong, in the Lachlan district. The first prospecting claim on this field was registered on the 26th of December, 1893, and in the early part of the following year there were over 10,000 persons on the ground. This number has now been reduced to reasonable proportions. In 1896 the quantity of gold obtained from this field was 33,495 ounces, which was only exceeded by the yield from the Hillgrove district.

NEW ZEALAND.

The United States consul at Auckland states that the production of New Zealand in 1898 was as follows: Gold, 251,492 ounces, valued at £976,198; silver, 183,892 ounces, valued at £20,872. These figures differ somewhat from those of the Melbourne mint, which were: Gold, 280,175 ounces; silver, 293,851 ounces. There seems to be no way of reconciling the figures.

NEW ZEALAND GOLD MINING.

[From The London Mining World, May 13, 1899.]

Since our previous New Zealand review the official statistics have been published, and we show how the several districts have progressed as compared with 1897, in the following table:

District.	1898.		1897.	
	Quantity.	Value.	Quantity.	Value.
	Ounces.		*Ounces.*	
Auckland	142, 383	£527, 786	150, 477	£392, 337
Marlborough	781	3, 003	810	3, 195
Nelson	1, 720	6, 882	1, 892	7, 055
West Coast	79, 948	319, 789	58, 817	235, 430
Otago	55, 343	223, 231	84, 649	342, 187
Total	280, 175	1, 080, 691	296, 645	980, 204

THE GOLD MINES OF NEW ZEALAND.

[From The Economist, London, January 14, 21, and February 24, 1899.]

I. COROMANDEL AND THAMES DISTRICTS.

Gold was first discovered in New Zealand in 1857, and the official returns up to the end of 1897 place the aggregate output at £53,372,634.

The industry had been largely in the hands of the colonists, with the exception of a mine here and there, until the mine flotation mania connected with the South African and West Australian boom spread to New Zealand. Then the years 1895–96 witnessed a perfect deluge of flotations. Mines which had been worked out by local companies or proved worthless were refloated, accompanied by the most laudatory prospectuses. London and Johannesburg syndicates vied with each other in securing ground; the whole of the Hauraki Peninsula was divided up into limited liability companies, and the investing public was fooled in the usual manner. So far as I can gather, about 30 exploration and finance companies and 100 gold mines were floated in New Zealand, of which the greater part remain unliquidated to this day. But some are fallen asleep. I should imagine that the next three years will witness the liquidation of at least 60 of the remaining 85 mines. The gold mines of New Zealand, however, are not wholly bad. There are half a dozen mines which will shortly be producing regular and profitable returns, and perhaps a dozen more which give promise of future profits if capably handled. Then there are the prosperous sluicing and dredging industries of the South Island. Last, but not least, there is the Waihi, one of the greatest gold mines in the world, whose output with little difficulty could be made to reach £50,000 a month.

From these various sources an increasing output is being registered month by month. In 1897 the total yield was £980,204; for 1898 the yield amounts to £1,080,691, and I have little doubt but that even these figures will be gradually improved on.

Of the 87 or so New Zealand gold mines now in existence which have been floated in London I inspected 25, including all the most important, and procured reliable information about nearly all the rest. Of these 87 mines, 43, or just 50 per cent, are situated in the Coromandel and Thames districts of the Hauraki Peninsula. These two fields have been worked incessantly by local companies and syndicates for the last thirty years. The characteristic feature of both fields consists of narrow leaders of quartz, frequently in disturbed country, which do not carry gold regularly throughout, but in rich patches here and there. In days gone by, and in the case of the Hauraki mine as recently as two years ago, a number of these rich patches have been found within a small area and temporary large profits have resulted. Apparently, however, these patches have always been found at shallow depths, not usually below 300 feet, and most of the mines which have been worked below that depth have failed to continue profitable.

It is easy to see that this class of mine belongs to the most dangerously speculative of mining risks, but apparently the then success of the Hauraki Company, together with the general speculative tendency of the time, was sufficient to admit of the flotation of the whole country for miles around.

In the Coromandel district there are 30 mines. Nearly all of these belong to the distinctive class of mine I have described; that is to say, possessing narrow leaders of quartz in which the management relies on finding rich patches here and there to make up for the great amount of barren work which has to be done. In the endeavor to succeed in this very speculative class of mining a good deal of sound work has been accomplished. Most of the mines are equipped with good shafts and efficient hauling and pumping gear, while the underground work has been done in a minerlike fashion. But the collective result of it all, as was only natural to expect, is almost total failure.

* * * * * * *

I now pass on to deal with the 13 English-floated mines at the Thames, some 40 miles south of Coromandel.

These mines present, in the aggregate, equally as hopeless an outlook as those at Coromandel. Most of these are rich patch mines, while several were formed to work a series of large low-grade reefs, which, it was said, the local mining people in the old days had unaccountably (?) neglected. From the results obtained from these reefs, after costly mills had been erected for their treatment, it would appear that the local people had shown a good deal of method in their neglect.

* * * * * * *

II. UPPER THAMES DISTRICT, WAIHI GROUP.

The upper Thames or Ohinemuri district contains a very different class of reef to the narrow patchy leaders worked at the Thames and Coromandel. Here the reefs are usually large, being frequently from 10 to 20 feet wide, wonderfully free from disturbance, regular in their occurrence, and containing the gold, whether in paying or unpaying quantity, fairly regularly distributed through the ore. This Ohinemuri district is by far the most important mining center in New Zealand, and I expect that quite a number of mines in the neighborhood will eventually become regular profit earners. Including some mines on the outskirts of this upper Thames district I find under this heading a list of 30 English companies.

* * * * * * *

IV. SOUTH ISLAND MINES.

In the north of the South Island are situated in different localities the Collingwood, Ravenscliffe, and Taitapu Estates mining companies.

To the south is the celebrated West Coast district, which, in the shape of alluvial sluicing and reefing, has in the past yielded nearly half of the total gold production of New Zealand. At present there are few quartz mines at work, but there is still a fairly large output from hydraulic sluicing. This industry is at present in the hands of local companies, but as there is apparently a large area of ground which would pay for sluicing if the initial capital were forthcoming, it is possible that this industry may be taken up to a certain extent by English companies. The initial outlay for a sluicing company consists almost entirely in the construction of a water race carrying enough power to admit of, say, 100 cubic feet of water a second being hurled with tremendous pressure through 4 or 5 inch nozzles against the face of the alluvial ground which has to be treated.

As to quartz mining on the West Coast, the principal developments now being carried on are on behalf of the Consolidated Goldfields of New Zealand, which I shall describe. The parent company holds a number of blocks of ground, most of which have been worked by local companies in the past with success. When the local companies came upon poor ore or from any cause ran short of cash their mines were shut down, and it was in this condition that most of them were made over to the Consolidated Company. Already three subflotations have been made, and others are in contemplation.

On the whole, the Consolidated Company appears to have attempted too much. Its initial working capital of over £200,000 has all been spent, and debentures to the extent of £50,000 have recently been issued, while most of the acquired mines are as yet in a similar condition to when they were taken over. In the case of the Progress mines, one of the subflotations, the Consolidated Company has got a genuinely fine mine, and of course an asset of great value; but, excepting this, I consider that the remaining mines are still in a comparatively unproved condition. The chances are that one or two of the blocks will turn out to be paying mines, but in the meantime a large amount of money will have to be spent in development. The parent company will require £100,000 over and above the £50,000 debentures recently issued for development, and I think that the success of the Progress mines warrants the directors in asking the shareholders to provide that sum.

* * * * * * *

The only remaining gold yield in New Zealand is in Otago, quite in the south. Here there are the following English mines:

Blue Spur and Gabriel's Gully, an hydraulic sluicing mine, earning small profits, and Achilles, Cromwell, Glenrock, and Island Block, of which the first three named are turning out a little gold, although not making regular profits. I do not think that any of these mines has a great future. The principal gold yield of Otago, and an increasingly important one, is got from dredging the river sands at the foot of the mountain ranges. There are about 100 large dredges at work or in course of construction in Dunedin. These put through immense quantities of sand and gravel for an infinitesimal yield of gold per ton, but as working expenses are very small good profits are being made in quite a number of cases. This industry is entirely in local hands, and the different companies have capitals of from £2,000 to £10,000. A large quantity of gold will doubtless be recovered by these dredges for some years to come.

QUEENSLAND.

Up to the end of 1898 the output of the Queensland gold mines, alluvial and quartz, has aggregated nearly £45,000,000.

The total in 1898 showed an increase of 101,172 ounces over the preceding year, and amounted to 920,048 ounces.

ESTIMATED YIELD OF GOLD FROM ALLUVIAL AND QUARTZ MINES SINCE THE YEAR 1877, AS SHOWN FROM WARDENS' REPORTS.

Year.	Alluvial.	Quartz.	Total.
	Ounces.	*Ounces.*	*Ounces.*
1877	164, 778	188, 488	353, 266
1878	130, 574	179, 038	309, 612
1879	107, 402	181, 154	288, 556
1880	86, 082	181, 054	267, 136
1881	70, 821	200, 134	270, 955
1882	52, 038	172, 855	224, 893
1883	35, 327	177, 460	212, 787
1884	26, 175	281, 629	307, 804
1885	21, 936	289, 005	310, 941
1886	15, 361	325, 637	340, 998
1887	21, 700	404, 223	425, 923
1888	12, 099	469, 544	481, 643
1889	10, 287	728, 816	739, 103
1890	19, 069	591, 518	610, 587
1891	16, 021	560, 418	576, 439
1892	17, 039	598, 519	615, 558
1893	19, 292	597, 648	616, 940
1894	25, 938	653, 573	675, 511
1895	28, 792	602, 890	631, 682
1896	30, 724	609, 661	640, 385
1897	37, 124	770, 804	807, 928
1898	....	....	920, 048

QUEENSLAND AND ITS MINES.

In the year which recently passed away, the gold-mining industry of Queensland, like those of all the other Australasian colonies, exhibited fairly satisfactory progress, and the results obtained afford gratifying evidence that the auriferous deposits of the colony are being developed with an amount of systematic vigor which can scarcely fail in the coming years to largely increase Queensland's contribution to the annual gold supplies of the world. There has been nothing approaching the sensational in the history of the industry since we reviewed it at length in our issue of November 19 last, and the movements in the prices of the few Queensland gold shares, for which there is at all times a free market in London, have been adverse "on balance" in the interval. Speculatively inclined investors have found metal more attractive elsewhere for the time being, and dealings in the group have been upon a very small scale. There is no room for doubting, however, that the gold-bearing deposits of the colony are of a very valuable character, and as modern scientific methods of treatment have rendered practicable the profitable extraction of quartz that would have been left as débris at the time of the Queensland "boom" a dozen years ago, we have no hesitation in expressing the view that the industry will in the future attract a greater amount of enterprise and capital than it has in the past. Existing holders of Queensland gold shares would, therefore, be well advised in retaining their interest, and in augmenting them as opportunities offer. During the past twelve months the colonial legislature passed an amended mining bill making the labor conditions less onerous, and in some other ways offering to the mining industry the encouragement it needs. In this connection, as in others, the death of Mr. Byrnes, the premier of the colony, was greatly to be regretted, for he was a staunch supporter of all measures tending to secure the introduction of British capital, and he was also strongly in favor of the establishment of a branch of the royal mint in Brisbane. His successor appears likely to pursue the same enlightened policy, and it is satisfactory to know that several branch lines for assisting in the development of mining operations are projected. The only improvement of that character last year was the completion of the line from Rockhampton to Mount Morgan, connecting the latter district with the central railway system of the colony; but a year hence we hope to be in a position to report the opening of other railway connections.

Three months ago we pointed out that up to the end of 1897 the total production of gold throughout the colony had reached 12,006,918 ounces, of the value of £41,749,606, the output having grown from 615,568 ounces in 1892 to 807,928 ounces in 1897. In 1898 the aggregate is reported to have been 918,100 ounces, an increase of 110,172 ounces, or about £400,000. The aggregates announced by the Government officials at the close of each year do not agree with the monthly totals; but we shall have to wait until the full report of the mining department is published to ascertain how the discrepancies have arisen.

For the present we can only show the monthly statements as received by cable and the aggregates announced at the close of the two years.

The comparisons are as follows:

Months.	1897.	1898.
	Ounces.	*Ounces.*
January	44, 600	49, 900
February	54, 500	69, 300
March	68, 400	74, 500
April	64, 000	73, 200
May	67, 800	74, 200
June	61, 800	85, 200
July	61, 550	75, 300
August	63, 100	81, 600
September	66, 600	81, 500
October	74, 900	71, 900
November	78, 000	80, 100
December	93, 150	94, 100
Adjusted totals	807, 928	918, 100

The value of last year's gold production probably amounted to about three and a quarter millions sterling, Queensland thus coming second to Westralia among the Australasian gold producers. From the subjoined table, in which the output of the principal districts is set out for the past six months, it will be seen that Charters Towers easily maintained its supremacy, the Mount Morgan district coming next.

Months.	Charters Towers.		Croydon.		Gympie.		Mount Morgan.	
1898.	*Tons.*	*Ounces.*	*Tons.*	*Ounces.*	*Tons.*	*Ounces.*	*Tons.*	*Ounces.*
August	67, 000	37, 300	3, 600	3, 200	9, 800	12, 300	18, 700	14, 300
September	72, 000	40, 400	6, 600	7, 500	10, 700	10, 400	18. 700	13, 900
October	74, 900	42, 800	2, 400	3, 300	10, 600	7, 300	18, 600	14, 300
November	75, 600	46, 100	1, 500	1, 300	8, 000	6, 300	17, 500	16, 500
December	74, 000	51, 100	3, 000	3, 400	18, 600	12, 200	18, 100	13, 500
1899.								
January	62, 500	33, 800	1, 900	2, 150	2, 000	2, 000	16, 300	11, 600

In December these four districts contributed 80,200 ounces out of the month's total of 94,100 ounces, leaving only 13,900 ounces for the rest of the colony, including Etheridge, Ravenswood, Eidsvold, and Palmer. Ravenswood is, however, going ahead, and promises to occupy a much more important place in the future than it does now.

We now remind our readers that a large proportion of the Queensland mines are in the hands of local companies and syndicates; but the properties either owned by British companies, or in which British investors are largely interested, comprises, in the Charters Towers district, the Day Dawn Block and Wyndham, the Day Dawn P. C., the Mills United, the Mills Day Dawn, the Rainbow and Peabody (once known as the Mosman), the Brilliant Gold, the Brilliant Block, the Brilliant and St. George's United, the Victoria Gold Mining Association, the Brilliant Central, the New Queen, the Victory, Craven's Caledonia, Mount Leyston, and the Bonnie Dundee; in the Gympie district the Great Eastern, the Phœnix, the Phœnix Golden Pile, the North Phœnix, the Australian, and the several Glanmire, Monkland, and Smithfield companies, while the Croydon district has the Croydon Goldfields, the Golden Gate, the True Blue; and the Mount Morgan has the mine of that name, one of the greatest gold mines in the world, which in about a dozen years has paid away in dividends nearly £5,000,000, besides spending more than £1,000,000 out of profits on capital purposes. Since the end of June last the returns of the Mount Morgan Company have been as follows:

[From the Mining World and Engineering Record, February 18, 1899, p. 277.]

Months.	Tons chlorinated.	Gold recovered.	Per ton.
		Ounces.	*Dwts.*
July	16, 840	13, 000	15
August	18, 279	13, 795	15
September	18, 533	13, 493	14
October	17, 934	13, 607	15
November	17, 401	16, 191	18
December	17, 452	12, 729	14
January	15, 607	10, 542	13

SOUTH AUSTRALIA.

Of all the Australasian colonies, South Australia has produced the smallest quantity of gold, the total output from the commencement of mining operations being valued at less than £2,000,000. In the province proper the yield is very small, amounting to but 4,031 ounces in

1896, the balance of 22,977 ounces being obtained from the northern territory. Here the mines are largely in the hands of Chinese, but a number of properties have recently been acquired by an English company, who are erecting the works necessary to their proper development. Of the 1,831 men engaged in gold mining in the northern territory in 1896 no fewer than 1,638 were Chinese. About a fourth of these Chinese are physically incapable of doing a fair day's work, and are dangerous from a sanitary point of view. Possessed of no means, whatever, and with no proper tools for the search of the precious metal, they eke out a miserable existence by mining a little alluvial gold.

TASMANIA.

The United States consul at Hobart states that the production of Tasmania in 1898 was as follows: Gold, 1,521 kilograms, valued at $899,645; silver (exports), 13,940 tons, valued at $815,125. These figures differ from those of the Melbourne mint, which put the gold product at 69,549 ounces, corresponding to 2,163 kilograms; and the silver product at 15,320 tons, valued at £188,892 or $919,245.

The registrar general of Tasmania sends the following table of the silver production of the colony:

RETURN SHOWING SILVER EXPORTED FROM THE COLONY OF TASMANIA, FROM 1884 TO 1898.

Years.	Silver.		Blister copper.	
	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*	
1884	½	£8	....	....
1885	½	14	....	....
1886	[a] 5	50	....	....
1887	11	157	....	....
1888	64	755	....	....
1889	204	2,966	....	....
1890	554	16,872	....	....
1891	2,359	66,579	....	....
1892	3,174	79,353	....	....
1893	13,052	153,852	....	....
1894	19,703	217,844	....	....
1895	20,251	227,916	....	....
1896	20,817	222,948	....	....
1897	19,516	216,893	[b] 5,473	£378,565
1898	13,940	167,618	[b] 4,565	317,437

[a] Packages.
[b] A conglomerate matter containing about 122 ounces of silver to the ton.

[From The Seven Colonies of Australasia.]

Although payable gold was found in Tasmania in 1852, yet it was not until the seventies that the metal was mined for on an extensive scale, the total production to the end of 1870 being less than 4,000 ounces. Beaconsfield is the principal gold field in the colony. It is situated on the west side of the river Tamar, 26 miles northwest of Launceston, and formerly produced a large quantity of alluvial gold, while the existence of a deep lead carrying good gold has now been proved. The Tasmania mine on this field is the largest gold producer in the colony and has yielded to date £652,000 in dividends, while it is proposed to develop some of the outside mines with British capital. Although its yield is at present small the Lefroy field has been another important center of gold production. The reefs are now being proved to a greater depth. At Mathinna a large quantity of gold has also been obtained. The principal mine on this field is the New Golden Gate, the deepest in the colony, its main shaft being 1,280 feet. In about eight years it has yielded gold to the value of £350,000 and has paid £163,000 in dividends. At Mangana active prospecting has been going on for some time and some rich stone was struck in 1898. In the Western district a little alluvial gold is obtained, while north of the Pieman River there is a large extent of auriferous country, but owing to the dense vegetation prospecting is difficult. On the whole, the gold-mining industry of the colony has made satisfactory progress during the last few years; indeed, the production in 1896, amounting to £237,574, was the highest recorded, and was nearly 63 per cent higher than in 1893.

WESTERN AUSTRALIA.

Western Australia advanced during 1898 from the third to the first place in the gold-producing colonies of Australasia, its product amounting to 1,050,184 ounces, or nearly 30 per cent of the whole.

The following table, published in the Mining World and Engineering Record of January 1, 1899, shows its exports, which correspond almost exactly to its product, since 1885:

Years.	Weight.	Value.
	Ounces.	
1886	302	£1, 148
1887	4, 873	18, 517
1888	13, 493	13, 273
1889	15, 493	58, 871
1890	22, 806	86, 664
1891	30, 311	115, 182
1892	59, 548	226, 284
1893	110, 891	421, 385
1894	207, 131	787, 099
1895	231, 513	879, 748
1896	281, 263	1, 068, 805
1897	674, 993	2, 534, 976
1898	1, 050, 797	3, 990, 693
Total	2, 703, 414	10, 202, 645

WESTERN AUSTRALIAN MINING IN 1897 AND 1898.

From the report of the Western Australian Chamber of Mines just to hand we extract the following table showing the amount of gold recovered by British companies by means of the various primary and re-treatment processes during 1898, in contrast with 1897:

Items.	1897.	1898.	Increase, 1898.
	Ounces.	*Ounces.*	*Ounces.*
From mill, smelting, etc	506, 810	632, 402	125, 592
From tailings	17, 248	65, 842	48, 594
From slimes	....	6, 207	6, 207
From concentrates	3, 316	5, 205	1, 889
Total	527, 374	709, 656	182, 282

The most striking feature is the progress made in the treatment of tailings, this item showing the largest proportionate advance. In all, 13 companies contributed to the 1898 total, of which two—the Lake View Consols and the Bayley's United—had the cyanide process in regular operation throughout the year, whereas the Lake View Consols Company was responsible for practically the whole of the 1897 total. Similarly, the latter undertaking this year produced all the gold which figures as having been derived from slimes.

* * * * * * *

[From The Statist, London, April 8, 1899, page 529.]

Colonies.	Weight.		Value.	
	1897.	1898.	1897.	1898.
	Ounces.	*Ounces.*		
New South Wales	292, 217	341, 722	£1, 088, 413	£1, 249, 242
New Zealand	251, 645	280, 176	980, 204	1, 080, 691
Queensland	807, 928	918, 106	2, 553, 141	[a]2, 892, 034
South Australia	33, 900	[b]33, 900	120, 044	[b]120, 044
Tasmania	60, 646	48, 913	227, 423	184, 865
Victoria	812, 766	837, 258	3, 251, 064	3, 349, 032
Western Australia	674, 994	1, 050, 184	2, 564, 977	3, 990, 698
Total	2, 934, 096	3, 510, 259	10, 785, 266	12, 866, 606

[a] Value calculated at £3 3s. per ounce.
[b] No information obtainable; last year's figures inserted to supply deficiency.

[From The Seven Colonies of Australasia, 1897–98, p. 212.]

Until quite recently Western Australia was considered to be destitute of mineral deposits of any value, but it is now known that a rich belt of mineral country extends from north to south. The first important discovery was made in 1882, when gold was found in the Kimberley district, but it was not until a few years later that this rich and extensive area was developed. In 1887 gold was found in Yilgarn, about 200 miles east of Perth, the find possessing importance because the precursor of the discovery of the immense tracts of gold-bearing country, the knowledge of the existence of which has drawn population from all parts of Australasia and brought the colony into the prominent position which it occupies at the present time. General attention was first attracted to these fields by further discoveries at Southern Cross, to the east of Yilgarn, and the sensational finds at Coolgardie, which followed in 1892, resulted in a rush to Western Australia which was reminiscent of the experiences of the fifties in the older settled portions of the continent. Thereafter, before the march of the prospector, the known gold-bearing area was rapidly extended, and in 1894 the country was divided into separate gold fields, so extensive were the preparations for its exploitation. At the present time there are thirteen gold fields in the colony, the most important from the point of production in 1896 being East Coolgardie and Coolgardie, in the eastern district, and Murchison, in the central district. It is estimated that there are now over 20,000 miners actively engaged on the gold fields. In 1896 the production amounted to 281,265 ounces, valued at £1,068,808, as compared with 30,310 ounces, valued at £115,183, in 1891.

[From The Seven Colonies of Australasia, 1897–98, p. 210 by T. A. Coghlan, Government statistician, New South Wales.]

GOLD.

Gold, the most valuable of noble metals, is found throughout Australasia, and the present prosperity of the colonies is largely due to discoveries of this metal, the development of other industries being, in a country of varied resources, a natural sequence to the acquisition of mineral treasure. Settlement in Australasia was still young when many-tongued rumor spoke of the existence of the precious metal, but it was not until the 16th of February, 1823, that the government was officially apprised of a discovery destined to be the precursor of a prosperity seldom surpassed in the history of nations. On the date mentioned Mr. Assistant Surveyor O'Brien reported that at a spot on the Fish River about 15 miles east of Bathurst he had discovered gold. Mention is made in the early records of New South Wales of several other finds, but it remained for Count Strzelecki and the Rev. W. B. Clarke to demonstrate the existence of the precious metals in payable quantities and to assert their belief in its abundance, an opinion strongly supported in England by several eminent authorities and substantiated by Hargraves' discovery in the year 1851. The gold fields of Lewis Ponds and Summer Hill Creek had hardly been opened up when, on the day that witnessed the severance of the Port Phillip district from the mother colony of New South Wales, Mr. J. M. Esmond discovered gold in Victoria. Shortly afterwards a rush set in for Ballarat, and the gold fever took possession of Australia. The following year (1852) saw gold found in South Australia and Tasmania. The rush to Canoona, in what is now Queensland, took place in 1858, and gold was discovered in New Zealand in the same year, though it was not until 1861 that a large population was, by the prospect of rapidly obtaining wealth, attracted to the last-mentioned colony. The last of the seven colonies in which extensive deposits of the precious metal were found was Western Australia, to which province a great rush set in but a few years ago, although gold was discovered in payable quantities in 1882.

The average value of gold won by each miner is given below, but, as the conditions under which mining is carried on are by no means the same in every colony, the figures, which vary considerably, may be somewhat misleading. In those provinces where a revival of mining has lately been experienced or, as in the case of Western Australia, where the colony is in its first stage of mining development, it is natural to expect a low average yield per miner, for mining as now carried out is not an industry from which immediate returns can be expected.

It is probable that the number of gold miners in New South Wales is largely overstated, otherwise the industry must be carried on at a great loss; and this will be the more apparent when it is remembered that a fairly large quantity of gold is obtained with other metals, the men employed at the working of which are not classified as gold miners. Most likely many of the men employ themselves in mining for only a portion of their time and devote the rest to more remunerative pursuits. But when full allowance is made on this score it will be evident that, in some colonies at least, the search for gold is not a profitable occupation.

The following table shows the number of miners at work in 1896, with the quantity and value of gold won per man, in those colonies for which definite information is available:

Colony.	Miners employed.	Average production of gold.			
		Quantity.	Value.		
		Ounces.	£	*s.*	*d.*
New South Wales	22,207	13.33	48	6	8
Victoria	32,123	25.06	100	5	0
Queensland	10,364	61.79	225	18	3
Western Australia	20,236	13.90	52	16	4
Tasmania	1,461	42.84	162	12	3
New Zealand	14,889	17.71	69	18	11

Attempts have been made to ascertain the average yield from quartz, but the number of tests made and the quantity of stone treated are inconsiderable; furthermore, it has not been found possible to obtain returns from all the principal mining centers. The results obtained for the five years ended 1896 were as given below. The high average yield for Queensland is due to the Mount Morgan mines, which for some years yielded one-third of the total gold production of that colony.

Year.	New South Wales.			Victoria.			Queensland.			Northern Territory.			Western Australia.			Tasmania.		
	Oz.	*dwt.*	*gr.*	*Oz.*	*dwt.*	*gr.*	*Oz.*	*dwt.*	*gr.*	*Oz.*	*dwt.*	*gr.*	*Oz.*	*dwt.*	*gr.*	*Oz.*	*dwt.*	*gr.*
1892	0	19	19	0	9	23	1	6	20							0	14	19
1893	0	16	11	0	9	6	1	6	8							0	13	22
1894	0	14	8	0	8	8	1	4	5	0	13	12				1	1	10
1895	1	7	1	0	8	7	1	1	6	0	19	3				0	18	8
1896	0	17	20	0	9	10	1	3	10	0	14	4	1	10	5	0	19	23

It is not pretended that these figures have any great statistical value; nevertheless they may be accepted as giving an approximate idea of the average yield of quartz reefs. Alluvial deposits are generally richer than those in reefs; but the precious metal is so unevenly distributed that any attempt to obtain a reliable average would be futile.

The greatest development of quartz reefing is found in Victoria, some of the mines being of a great depth. At the end of 1896 there were five mines in the Bendigo district over 3,000 feet deep, and five others over 2,700 feet deep. In Lansell's 180 mine a depth of 3,352 feet had been reached, and in the Lazarus mine, 3,185 feet. In the Stawell district a depth of 2,409 feet had been reached in the Magdala mine.

The value of machinery on the gold fields of those colonies from which returns were obtainable is appended. In all cases the figures refer to the year 1896.

Colony.	Value.
New South Wales	£693,198
Victoria	1,769,748
Queensland	1,199,123
Western Australia	880,475
Tasmania	412,500
New Zealand	819,811

GOLD IN TORRES STRAITS.

[Written for the Engineering and Mining Journal by John Plummer.]

The impression prevalent among Australian miners to the effect that gold is abundant in the islands in the vicinity of New Guinea and Thursday Island has apparently been confirmed by recent discoveries at Horn Island, one of the Prince of Wales group, forming a continuation of the rock formation of the Queensland mainland, north of Cape York. The island is divided from Thursday Island by a narrow but deep channel, about 1½ miles in width. Queensland miners have for some time been aware of the fact that many of the islands were auriferous, gold having been found on the Prince of Wales, Hammond, and Possession islands, as well as on Horn Island, the first discovery at the latter place being in 1894, when the island was proclaimed a gold field by the Queensland Government. Communication with Horn Island is by rowboat from Thursday Island, the landing place being near the workings. After the field had been proclaimed a number of leases were pegged out, but the place was speedily discovered not to be "a poor man's field, and the original prospectors were left in undisturbed possession of the auriferous area, which they worked with such persistence that it became necessary to obtain a 5-stamp battery engine, boiler, and Berdan pans. As the work proceeded it became apparent that a rich body of ore had been struck, and the fortunate lease holders went a step further and obtained the services of a practical manager from the Croydon (Queensland) gold fields. He speedily ascertained that the country rock contained gold, and at once commenced crushing with such success that another 5-stamp battery had to be secured, and it is now proposed to increase the plant by 30 stamps. The mining, or rather quarrying, is at the base of a steep hill, rising as the work progresses. The excavations extend a distance of nearly 200 feet, the height being about 36 feet, and there is every indication of gold being under foot. With the introduction of suitable machinery the gold-bearing rock can be crushed in larger quantities. The leases have now been secured by a Victorian syndicate, and steps are being taken to procure all needful appliances. The success of the Horn Island miners has led to the systematic prospecting of the other islands. On Possession Island, 12 miles distant from Horn Island, a 5-stamp battery and a cyanide plant are being worked with considerable profit. The Prince of Wales group is situated in the same latitude as the Louisiade Archipelago, in which Sudesh and other gold-bearing islands are found. Woodlark Island, another auriferous locality, being a few miles farther north. All these islands are supposed to have originally formed a portion of New Guinea, which was also joined to Queensland by a broad neck of land, of which Thursday Island, the Prince of Wales group, and other islands are the remaining vestiges. The wild mountainous character of most of the islands, several of which are covered with dense forest jungle, a vast hotbed of malaria, has hitherto, as in British New Guinea, impeded the systematic work of prospecting, but with the progress of settled government, clearing, and drainage the real extent of the auriferous wealth of these islands will become more correctly estimated.

AUSTRIA-HUNGARY.

According to official information received by this Bureau, Austria's output of gold in 1898 was 448,060 kilograms of gold ore, valued at 54,876 florins, or $22,235.76, representing 33,457 kilograms, fine.

The amount of silver obtained in 1898 from Austria's mines was 20,886,200 kilograms of ore, valued at 1,762,595 florins, or $714,203.49 (commercial value), representing, at the average price of silver during the year, viz, $0.59 per ounce, fine, 1,210,514 ounces, fine, of the coining value of $1,565,109.

According to official reports Hungary produced, in 1898, 2,764.49191 kilograms of fine gold, valued at 4,533,766.73 florins, or $1,837,281, and 18,783.5695 kilograms of fine silver, valued at 1,070,663.46 florins, or $780,645 (coining value).

GOLD.

Country.	Weight.	Value.
	Kilograms.	
Austria	33.457	$22,236
Hungary	2,764.492	1,837,281
Total	2,797.949	1,859,517

SILVER.

Country.	Weight.	Value.
	Kilograms.	
Austria	37, 659. 023	$1, 565, 109
Hungary	18, 783. 569	780, 645
Total	56, 442. 592	2, 345, 754

At which figures it appears in the tables of the world's production.

BOLIVIA.

Bolivia prepares no official statistics of her gold and silver product. She has no seaports, and practically all of her silver product is shipped through the Chilean port of Antofagasta, where a record of it is kept at the Chilean custom-house. The Chilean statistics are very complete, but are usually a year late, and none have yet been received for 1898.

The following table gives the Bolivian exports of silver bullion and ore from Chilean ports in 1896 and 1897:

Exports from Bolivia through the Port of Antofagasta.

Description.	Weight.	Value.	United States value.
1896.	*Kilograms.*	*Pesos.*	
Silver ore	2, 931, 720	1, 463, 171	$533, 911
Silver bullion	135, 051	8, 141, 110	2, 970, 691
Silver sulphides	12, 003	15, 003	5. 474
Total	3, 078, 774	9, 619, 284	3, 510, 076
1897.			
Silver ore	19, 119, 078	9, 559, 544	3, 488, 277
Silver bullion	79, 660	2, 389, 736	872, 015
Silver sulphides	23, 199	28, 905	10, 547
Total	19, 221, 937	11, 978, 185	4, 370, 839

The commercial value of the exports in 1896 was $3,510,077, equivalent, at the average price of silver for that year ($0.674), to 5,207,829 ounces, fine, of the coining value of $6,733,355. The coinage of Bolivia for 1896 was equivalent to $1,508,087 in United States money, and the exports plus the coinage was equivalent to $8,241,442, which is assumed to have been the product for that year.

The commercial value of the exports in 1897 was $4,370,840, equivalent, at the average price of silver for 1897 ($0.60), to 7,284,733 ounces, fine, of a coining value of $9,418,645, which, plus the coinage for 1897, $1,189,282, is equivalent to $10,607,927, or the assumed product for 1897.

There being no figures at hand for 1898, this Bureau assumes that the 1898 product was equal to that for 1897.

The production of gold in Bolivia is very difficult to estimate, even approximately, from the fact that the export statements do not mention having sent any gold out of the country, and in the absence of this information this Bureau is compelled to resort to the European tables of imports in order to obtain this data. The tables of imports of Great Britain and Germany show that they imported in 1896 from Chile $586,960 worth of gold in ore and bullion, and as Chile claims to have exported in ore and bullion of her own product only 922,511 pesos (or $336,624 worth), the difference ($250,336, representing 12,110 fine ounces, or 377 kilograms, fine) evidently came from Bolivia, and is accordingly accredited to that country as their product for 1896.

A similar estimate is made for the year 1897. Great Britain, France, and Germany, having imported $684,210 in gold ore and bullion, while Chile exported 933,703 pesos (or $340,708) of her own product, the difference ($343,502) is assumed to have been the product of Bolivia, which is equivalent to 16,617 ounces, or 517 kilograms, fine. While it is not believed that this is Bolivia's total gold product, it is at the present time taken as such, provisionally.

BRAZIL.

Under date of March 12, 1899, Minister Bryan writes to this Bureau that accurate official statistics are lacking in Brazil, but that he learns from the best obtainable unofficial sources that the amount of gold produced in 1898 was 3,600 kilograms, and that the amount of silver was inappreciable.

The figures for the gold production of Brazil have been perplexing for years. In 1897 no figures were obtainable, and the production was estimated as being equal to the gold exports of the country, viz, to 58,251 ounces, or 1,812 kilograms, fine, equal to $1,204,200. If, therefore, the product reported by Minister Bryan is fine, the increase over 1897 is enormous. It is probable, however, that it is crude. In 1896 the State of Minas Geraes, which is the principal gold-mining State of Brazil, was reliably, though unofficially, stated to have produced 1,961 kilograms, valued at 5,285,890 milreis (paper). This is equivalent to $971,337, and represents 1,461.59 kilograms, fine. That is to say, the gold of Minas Geraes in 1896 was 0.750 fine.

If the same degree of fineness is supposed to continue in 1898, the 3,600 kilograms reported by Minister Bryan correspond to 2,700 kilograms, fine, with a value of $1,794,020.

The gold exports of 1898 are officially stated to be 2,600 kilograms, which, at 0.916⅔ fine (the average fineness for Brazilian gold exported), is equivalent to 2,383 kilograms, or 76,613 ounces, fine, valued at $1,583,742.

Minister Bryan estimates the industrial consumption of gold at 1,000 kilograms, but says that there are no figures in regard to the matter. He evidently obtained this high estimate simply by subtracting the 2,600 kilograms, which he says were exported, from the 3,600 kilograms at which he estimated the production.

The amount consumed, if not so great as Mr. Bryan estimates, might easily be 317 kilograms, fine, or $210,678, which is the difference between the fine values of production and export, as estimated above.

Minister Bryan sends to the Department, under date of March 12, 1899, the following approximate figures for the gold product of the State of Minas Geraes since 1700:

Years (inclusive).	Amount.
	Ounces.
1700-1713	140,000
1714-1725	1,080,000
1726-1735	1,350,000
1736-1751	4,850,000
1752-1766	5,120,000
1767-1777	2,530,000
1778-1808	4,340,000
1809-1834	890,000
1835-1890	3,250,000
1891-1898	600,000
Total	24,150,000

The English foreign office recently published an account of a journey through Minas Geraes. The Economiste Européen of March 10, 1899, publishes part of it, among them the following, on the production of gold in that State:

> It has been calculated that the production of gold in the State of Minas Geraes from 1700 to 1820 amounted to an average of 140,496 ounces per annum, and from 1820 to 1860 to 51,300 ounces per annum. The production between 1860 and 1888 is estimated at 60,000 kilograms, or about 67,000 ounces per annum. There is no doubt that since 1888 the production has increased.
>
> The Morro Velho mine, after many disappointments, now yields, with 100 stamps working day and night, gold worth £24,000 per month. It yielded in 1897, 51,101 ounces. The capital of the company is £611,935. The Ouro Preto mine, with a capital of £136,820, extracted in 1897, 19,378 ounces, and several other companies have been since formed, among which we may mention the Saint Bento Company, the Carrapato Company, with a capital of £375,000, and the Faria Company, with a capital of £50,000. When the companies are in full operation their production, now estimated at 108,000 ounces, will be nearly doubled. Besides the important mines we have mentioned, there are a number of small ones working ten or fifteen stamps of wood. Gold pays a duty to the State of 5 per cent. In 1897 the duty produced £10,800.

GOLD MINING IN MINAS GERAES.

The Department of State has received from Minister Bryan, under date of Petropolis, March 12, 1899, an account of the visit of the secretary of the legation, Mr. Dawson, to the diamond and gold mines and agricultural regions of the State of Minas Geraes. The following extract is made from his report:

> Minas Geraes is the most populous State in Brazil. It has 3,000,000 or 4,000,000 inhabitants, and its area is about 222,000 square miles. On account of its elevation the climate is, for the most part, cool, temperate, and healthy. There is no winter in the ordinary sense of the word. The surface is a great plateau with a general height of 2,000 to 4,000 feet above the sea. It is varied by an extensive river system and mountain chains, the latter rarely reaching an elevation of more than 6,000 feet. In the southern part of the State are several lines of railway, coffee is largely exported, immigration has been considerable, and the commercial conditions resemble those of the neighboring States—São Paulo and Rio de Janeiro. The northern part, including four-fifths of the area, is without railways and is more isolated, self-supporting, and characteristically Brazilian. In this region are found the diamond mines. It contains a large population, and is one of the most prosperous parts of Brazil.
>
> In mining, Minas is preeminent among the States of the Republic. It has produced and still produces by far the largest proportion of the mineral output of the country.
>
> The route from Rio de Janeiro is by the Central Railroad, owned by the Federal Government. The main line extends to Barra de Pirahy, 67 miles, thence branching west to São Paulo and north to Minas. The latter line is standard gauge as far as Lafayette, 290 miles from Rio de Janeiro, and for the remaining 140 miles to Sete Lagoas is narrow gauge. It takes thirteen hours to cover the 290 miles to Lafayette and eight and one-half hours for the remaining 140 miles. I was gratified at seeing that the engines, passenger coaches, and sleeping cars were made in the United States. This railway does a large business, both passenger and freight. There are many large towns along the line, and the territory through which it passes is fertile and populous and has great resources yet undeveloped.

GOLD.

> The principal gold-producing territory of Minas begins 250 miles north of Rio de Janeiro and extends along the Serra da Espinhaco as much farther toward the north. Gold is found and mined in other localities, but the bulk of the past and present production of Brazil is from this district. The discovery was made in 1693 by slave hunters from the province of São Paulo, who were after Indians. There was an immediate inrush of adventurers, and by the beginning of the eighteenth century thousands of them with their slaves were scattered all over the territory which has since been so productive. Until 1760 the production continued to increase rapidly in spite of the exorbitant and tyrannical exactions of the Government and the rude and superficial methods of mining employed. At its maximum, it amounted to more than 320,000 ounces a year. After 1760 it declined, at first slowly, and then after

1800 rapidly. The industry revived in the years following the independence of Brazil, in 1822, with the introduction of foreign capital and underground mining. While modern production has never been as extensive as that of the last century, it has been and continues to be fairly profitable and prosperous.

The earliest mining was from the placers in the beds of the small mountain streams. These were exploited in a manner substantially similar to that described above as used for diamonds. At first the gravel was washed in small wooden or metal plates and the gold picked out by hand. Later, the "batea," a large wooden pan, 2 feet or more in diameter, was introduced, probably from Africa by slaves. In this a fairly complete separation of the metal was possible by the use of water and the familiar gyratory motion. When the bed of the stream was exhausted, the miners went up the sides of the valley, finding deposits left in abandoned beds of the river or higher up the flanks of the hill. In following the lines of the mineral yielding gold, the miners finally came to the mother veins. In Brazil these are often of friable material, which can easily be pulverized with the aid of running water, and the country rock on either side of the vein is also frequently of the same character. Where such veins were found, we encounter the ancient open mines that are so characteristic of Brazilian gold mining. Near Diamantina we visited some typical examples. It is evident that the old miners knew nothing of underground mining and, except in rare instances, their excavations are open to the top. These great gullies were made with the assistance of running water, brought from considerable distances in canals carried along a high level of the mountain flank. The water was conducted to the point where the lower outcrop of the vein began, and, as it flowed, with the aid of a pick and shovel, the ore and surrounding material was cut away. This process was continued backward up the hill until the gully became so deep that the débris was unmanageable. The extent of some of these excavations is enormous. One at São Joao da Chapada, a few miles south of Diamantina, is 150 feet deep, 1,000 feet wide, and 2,000 feet long. The mass of material washed down was concentrated in the rudest conceivable manner. Even the use of the sluice was not understood and in its place the gravel was given its first wash in a "canoa." This is merely a level section of the canal in which the gravel and débris is carried down. The water is allowed to fall into this level space over a lip a few inches high, and a workman stirs with a sort of rake the gravel at that point. Below the "canoa" there is an inclined plane covered with hides laid with the hair up in order to catch the gold that does not sink to the bottom. In addition to the loss of gold inevitable with such a system of washing, the miners labored under the disadvantage of being liable to lose their vein by the falling in of the side rock. And not only did they lose the clue, but it is lost forever. Many of these old mines are undoubtedly still rich, but the veins are so covered up by the débris that their outcrops can not be found and traced.

An interesting feature of the larger hillside mines are the "mondeas," rectangular masonry reservoirs 50 to 80 feet square and 10 to 20 feet deep, made to catch and hold the material washed down by the canal until it could be conveniently worked. They were necessary where the amount of water was large. In the few instances where the old miners exploited veins for which no water was available, they simply dug a hole, open to the sky, carrying out the mineral and earth upon the heads of slaves. They were almost never willing to lose sight of the vein.

The running of underground galleries and scientific mining did not begin until the Baron de Eschwege, a German expert sent by the Portuguese Government in 1815 to examine and report upon the mining industry, came to Minas and devoted himself to its development. While the enterprises he set on foot were not successful, he gave to the scientific and mining world valuable information concerning the gold deposits of Minas. After 1822, when Brazil became independent, the laws were made more liberal and foreign companies were permitted to enter the field. With the formation of the Imperial Brazilian Mining Association, in 1824, the company that afterwards owned the celebrated and rich Gongo Soco mine, began the introduction of foreign, and especially of English, capital. The major part of the exploitation since has been by foreign companies.

The gold-bearing mineral of Minas is principally of two kinds—quartz in veins and itaborites, or "jacutinga," a nearly pure peroxide of iron in beds. The quartz is sometimes of the ordinary free-milling varieties, white or smoky in color and little mixed with other mineral, or else in the form of quartzite. The principal mines in this kind of quartz are the Boa Esperanca, Carranca, and Juca Vieira, near Caethe, and the Banderinha, near Diamantina. The Juca Vieira has lately been producing about 600 ounces annually and the Carranca half as much. The other mines are even less important.

Of far greater importance than the free-milling quartz mines are those in veins where the quartz is mixed with pyrites. The vein of the Morro Velho, the largest mine in Brazil and one of the great mines of the world, is of this character. The ore is composed of fine-grained quartz and iron and arsenic pyrites, mixed with magnetite and copper pyrites, siderose, and calcite. Over 2,000,000 ounces of gold have been extracted from this mine by the Saint John d'El Rei Company, an English corporation formed in 1830. Brazilians worked it during the last century, employing the old open method. It is related that when powder could not be obtained, fires were built and the hard quartz cracked by throwing cold water upon it. In 1818 the mine had been abandoned, but about 1830 it was bought by an Englishman who sold it in 1834 to the present company for £56,000. The mine came into full operation in 1842, and from then until the great disaster of 1867 an annual dividend of 25 per cent was paid upon the capital of £135,000. In 1867 the shafts had reached a depth of 1,200 feet, but operations were interrupted by the burning out and falling in of the mine. The destruction was so complete that it was found necessary to sink two new shafts to the same depth as the former ones in order to reach the vein. The cost was £87,000, the capital stock being increased to £233,000 for this purpose. In 1874 the payment of dividends was resumed. They averaged 31 per cent until 1882, when difficulties with water began to be met with on account of the great depth (nearly 1,900 feet) the mine had reached. The ore also became less rich. In 1886 the whole mine once more fell in, and the ruin was again so complete that for the second time entirely new excavations had to be made. Mr. G. Chalmers, the present manager, undertook the work. He built a horizontal gallery 1,100 feet long, and two new shafts, one 2,190 and the other 2,310 feet deep. These reach the vein 40 feet beneath the bottom of the old mine. Mr. Chalmers abandoned the old milling machinery and has installed a 100-stamp mill of California design, and an extensive chlorination establishment, which has proved effective in reducing the refractory portion of the ores. Power is furnished by Pelton wheels, operated by water collected by artificial canals from a wide area of mountain. At times this proves insufficient, and it is helped out by steam engines which burn wood cut in the neighboring forests. Since 1890 the mine has once more been profitable, and the new capitalization of £233,000 completely freed. The ore now being extracted yields, under the scientific treatment employed, six-tenths of an ounce per ton. The annual output is about 50,000 ounces. The form of the ore body is interesting to mining engineers. It consists of an oval swelling in a vein. The vein itself is vertical, and the "chimney" is inclined at an angle of 45° in the vein. At the surface its outcrop is 800 by 60 feet, and it varies considerably in size as it descends, but always maintains an ample width. The average dimensions of the "chimney" are about 50 by 500 feet. Having such a large ore body in a single mass, the mine is unique in the tremendous extent of the open excavations from which the mineral has been taken.

This mine is situated 15 miles south of Bello Horizonte, the State capital and may be reached from there on mule back over a romantic mountain trail. A more convenient route is from the nearest station on the Central Railroad, from which it is distant only a few miles by a wagon road. Of the employees, some seventy-five are English, and they have their tennis and cricket as if they were at home. Before the abolition of slavery the company owned slaves. Thereupon an interesting question arose as to the propriety and legality of an English corporation owning human flesh and blood, and it was even subject of diplomatic correspondence. But humanitarian scruples did not prevail against the desire to make large dividends.

The second largest mine is the Passagem, near Ouro Preto. This city was formerly the capital of Minas, and the region of which it is the center was the richest in Brazil. The Passagem has also been worked since the last century. The ore contains a large proportion of arsenical pyrites, and it is from this that most of the gold is obtained. The quality is variable and the mine has had a checkered history. In 1863 it was bought by an English company and by 1873 they had extracted 23,500 ounces from ore yielding one-fourth of an ounce per ton. This was not profitable and the company went into liquidation. In 1884 a new company, the "Ouro Preto Gold Mines of Brazil," bought the mine and with better methods of exploitation and reduction the Passagem has justified its old reputation of being one of the best in the country. The ore averages one-third of an ounce per ton.

The best example of a mine where the gold is obtained from beds of peroxide of iron, called "jacutinga," a soft, friable, brown mineral, is the Gongo Soco. This mine is situated about 50 miles east of Morro Velho and high up on the ridge of the main serra. It was discovered and worked before the middle of the last century. Stories that sound like fables are told of its marvelous richness. In 1818 the Brazilian proprietor took out over 5,000 ounces of gold in one month. In 1826 the mine was sold to an English company for £74,000. The mineral is found in a bed 300 feet thick, interstratified between schistose slates and limestones, lying at an angle of 45°. Much of the ore was so rich that the gold was plainly visible to the naked eye. Ore of this character was detached with picks, separated and powdered by hand, and then washed in pans. This work was intrusted only to the fifty English miners imported by the company. Five hundred slaves were employed in positions of less temptation. The Brazilian tales of the wonderful richness of the ore were more than verified by the experience of the English company. In one instance a miner brought out in his hat half a peck of "jacutinga," which yielded 310 ounces of gold dust. The hat must certainly have been one of the leather hats so universally used in the Minas mines to-day. The bulk of the ore was crushed in stamp mills and subjected to a more complicated process than the selected portions. The upper parts of the bed were the richest, and from 1826 to 1841 the mine produced largely and at small outlay. During the following fifteen years the production decreased, and the expense grew on account of the flooding of the mine. It was at last abandoned in 1856, after having yielded 400,080 ounces of gold for a total outlay of £989,000. During the early and profitable period the Government levied a tax of 25 per cent of the gross product, and the company paid into the imperial and provincial treasuries over £333,000.

The Maquine mine, near Ouro Preto, the Pitangui, Cocaes, Boa Vista, and Morro das Almas, all near each other and 20 miles south of Santa Barbara, were other "jacutinga" mines of considerable value. None of them are being operated at present. Besides the Morro Velho and Passagem there may be mentioned among the quartz and pyrites mines that of Pari, to the east of Santa Barbara; Catta Branca, directly south of Morro Velho; Cuiaba, owned by the Saint John d'El Rei Company; Faria, near the station of Honorio Bicalho, on the Central Railroad, and owned by a French company; Raposos, near Sabara, and belonging to the Passagem Company, and Vira Copos. Most of these are in operation.

Shortly after the proclamation of the Republic in 1889 a considerable number of Brazilian companies were floated for the purpose of engaging in gold mining in Minas. The results so far have not been notable. There are undoubtedly large deposits of quartz and "jacutinga" yet unexplored or which have not been worked because they have been covered up by early operations. Difficulties often arise on account of the impracticability of obtaining available water power sufficient to keep the mines free from the great quantities of water encountered in Brazilian mining. No coal is mined in Minas, and freight rates do not permit its importation so far inland. Consequently steam is unavailable for pumping and there are no smelting works. Little Brazilian ore is free milling, and that which is not must be reduced by chemical processes. A large development of the mining industry of Minas is probable, but those alone who employ the safest and most scientific methods of exploration and installation and who command large capital can reasonably hope to be successful. Mining in Minas offers few inducements for small prospectors.

The legislation in regard to the acquirement of mining property now in force is liberal, and the restrictions and formalities imposed are few and reasonable. The owner of land has the first right to the mineral; but if he does not exercise it others may explore, after giving notice. The discoverer of mineral is entitled to 4 lots of 50 meters square, with ground necessary for working. Claims are freely transferable, but no single person or company may own more than 100 contiguous lots. Abandoned claims revert. The most onerous burden is the State export tax, amounting to 5 per cent of the gross product. The larger mines can not escape the payment of this tax, but there is much illicit exportation by small operators. This fact makes the gathering of complete statistics impracticable.

I investigated the historical data still preserved as to the gold production of Minas and inquired of the best local sources as to its probable present amount. Fairly complete statistics exist of the amount of taxes collected in colonial times. Since the Government took one-fifth of all the gold produced the computation is easy. The output of the larger mines in this century is also known. The contraband production of the last century and that of the smaller private mines in this can only be estimated. The gold production of Minas has been approximately as follows:

Years (inclusive).	Per year.	Total.
	Ounces.	*Ounces.*
1700-1713	10,000	140. 000
1714-1725	90,000	1,080,000
1726-1735	135,000	1,350,000
1736-1751	303,000	4,850,000
1752-1766	320,000	5,120,000
1767-1777	230,000	2,530,000
1778-1808	140. 000	4,340,000
1809-1834	34,000	890,000
1835-1890	58,000	3,250,000
1891-1898	75,000	600,000
Total	[a] 121,400	24,150,000

[a] Average per year.

BRITISH INDIA.

The director-general of statistics of British India informs this Bureau that the production of gold in British India from 1892 has been as follows:

Years.	Weight (0.916⅔ fine).	Fine weight.	Value.
	Kilograms.	*Kilograms.*	
1892	4,993	4,576.916	$3,041,818
1893	6,262	5,740.166	3,814,914
1894	6,371	5,840.083	3,881,319
1895	7,643	7,006.083	4,656,243
1896	10,063	9,224.416	6,130,547
1897	11,896	10,904.666	7,247,241
1898	12,773	11,708.583	7,781,524

No silver is produced in India.

TABLE SHOWING THE OUNCES AND VALUE OF THE GOLD PRODUCED BY THE MINING COMPANIES AT WORK ON THE COLAR FIELDS DURING CALENDAR YEARS 1897 AND 1898.

Gold mining companies.	1897.		1898.	
	Weight.	Value.	Weight.	Value.
	Ounces.		*Ounces.*	
Mysore	*a* 127,517	£497,887	*a* 159,374	£622,274
Ooregum	*a* 55,829	209,299	*a* 52,585	197,221
Nundydroog	*a* 56,367	212,030	*a* 41,534	156,109
Mysore Reefs	542	2,419	2,852	11,010
Nine Reefs	224	869	2,488	9,453
Mysore West *b* Mysore Wynaad *b* } (Tank Block)	10,349	39,899	5,222	20,053
Balaghat-Mysore *c*	176	636	414	1,605
Gold fields of Mysore	1,798	6,972	*d* 2,382	*d* 9,131
Champion Reefs	*a* 123,926	473,144	140,158	530,330
Coromandel	12,900	48,462	8,140	30,526
Total	389,628	1,491,617	415,149	1,587,712

a Returns from all sources.

b The Mysore West Company and Mysore Wynaad Company have owned and worked conjointly the Tank Block since 1891.

c The produce of the Balaghat-Mysore for 1897 was not obtained from crushings, but from treatment of tailings only.

d Ten months only (1898).

GOLD MINING IN THE COLAR FIELD OF MYSORE, INDIA.

[From the Mining World and Engineering Record, London, January 28, 1898, pp. 137, 139.]

The year 1898 shows a steady increase in the output of gold from the Colar field. It will be seen by consulting table annexed that it shows an augmentation of about £96,000 over that of its predecessor, being more than double that for the year 1893. Good as the total result of £1,587,712 for 1898 is, it would have been better by about £100,000 had only those properties that show a diminution in their returns during the year produced a similar amount of gold to that of 1897. Much more pronounced, undoubtedly, the increase in yield would have been had only the Nundydroog, Tank Block, and Coromandel, instead of showing a falling off in yield, augmented their returns in the way that was expected, judging from the prospects that appeared to be opening out for them at the commencement of the year. The year, however, had hardly begun before a severe flooding of the Nundydroog mine was announced, from which it has not even yet recovered. This has caused it to show a greatly reduced monthly output since January.

Still more marked even, in proportion, has been the diminution in the returns from the Tank Block and Coromandel properties. The diminished returns from the former are attributed to the workings having encountered a "horse," or, in other words, an intrusion of country or barren rock, which has not as yet been passed through. The poorer returns from the Coromandel are attributed to the same cause. So far the Nundydroog is the only one of these three properties giving signs of a recovery by better returns.

It is very gratifying to notice that Balaghat-Mysore has again resumed crushing; but, as yet, with only 10 heads of stamps. The crushings on this property are likely to be continuous, with gradually increasing returns monthly. The Mysore and Champion Reef mines have been mainly responsible for the increase in the total output for the year, the former having given an average increase of about £10,000, and the latter about £5,000 monthly. For some unexplained reason there have been no returns for the last two months from the gold fields of Mysore. The crushings for the last quarter of the year show a small increase over those of the previous one.

The total stamping power on the field now amounts to 641 heads, including the 30 old heads of the Mysore, which, however, together with the 10 heads of the Yerraconda, are at present unemployed. Many other stamps on the field, also, are not at present working.

* * * * * * *

BRITISH NORTH AMERICA.

CANADA.

The gold of British North America is derived from Canada and Newfoundland, the former including Nova Scotia, Ontario, Quebec, British Columbia, the Saskatchewan, and the Yukon. The production for 1898 shows a large increase over that for 1897, most of it being due to British Columbia and the Yukon.

Silver, on the other hand, although quite generally produced, comes mostly from British Columbia, where a very heavy decrease took place as compared with 1897.

GEOLOGICAL SURVEY OF CANADA.

OTTAWA, *July 25, 1899*

DEAR SIR: I am in receipt of your note of July 22, respecting the production of gold and silver in the Dominion of Canada for 1898, and have much pleasure in inclosing the details of production of these metals, by provinces.

As stated in a previous letter, we do not here deal with the statistical returns from Newfoundland, that island being still a separate colony, nor have we such returns for reference. At the same time I believe that there is no gold-product return from Newfoundland, and if any silver, only a certain quantity contained in pyrite ores.

For Newfoundland you should refer to Mr. J. P. Howley, director geological survey, St. Johns, Newfoundland.

Yours, truly,
GEORGE M. DAWSON.

The DIRECTOR OF THE MINT,
Treasury Department, Washington, D. C.

GOLD PRODUCTION IN CANADA, 1898, BY PROVINCES.

Province.	Amount.
Nova Scotia	$538, 590
Quebec	6, 089
Ontario	265, 889
Northwest Territories:	
Saskatchewan (estimated)	25, 000
Yukon district	10, 000, 000
British Columbia	2, 939, 852
Total	13, 775, 420

SILVER PRODUCTION IN CANADA, 1898, BY PROVINCES.

Province.	Weight.	Value.
	Ounces.	
Ontario	85, 000	$49, 521
Quebec	74, 932	43, 655
British Columbia	4, 292, 401	2, 500, 753
Total	4, 452, 333	2, 593, 929

GOLD.

The following tables, up to and including 1897, were obtained from Volume X of the annual report of the geological survey of Canada, published last spring. The figures for 1898 are taken from a report to this Bureau by the Director of the Survey:

PRODUCTION OF GOLD IN CANADA SINCE 1886.

[From Report of the Geological Survey of Canada.]

Year.	Nova Scotia.		Ontario.		Quebec.		Saskatchewan.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Ounces.		*Ounces.*		*Ounces.*		*Ounces.*	
1887	21, 212	$413, 631	327	$6, 760	....	$1, 604	102	$2, 100
1888	27, 407	436, 939	....	....	....	3, 740	58	1, 200
1889	26, 155	510, 029	....	....	....	1, 207	968	20, 000
1890	24, 358	474, 990	....	....	....	1, 350	194	4, 000
1891	23 391	451, 503	97	2, 000	....	1, 800	266	5. 500
1892	21, 080	389, 965	344	7, 118	....	12, 987	508	10, 506
1893	14, 030	381, 095	708	14, 637	....	15, 696	466	9, 640
1894	14, 980	389, 338	1, 917	39, 624	....	29, 196	725	15, 000
1895	22, 113	453, 119	3, 015	62, 320	....	1, 281	2, 419	50, 000
1896	25, 597	493, 568	5, 563	115, 000	....	3, 000	2, 661	55, 000
1897	26, 964	562, 165	9, 158	189, 294	43	900	2, 419	50. 000
1898	26, 957	538. 590	12, 863	265, 889	295	6, 089	1, 209	*a* 25, 000

Year.	Yukon.		British Columbia.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Ounces.		*Ounces.*		*Ounces.*	
1887	3, 387	$70, 000	....	$693, 709	57, 465	$1, 187, 804
1888	1, 935	40, 000	....	616, 731	53, 150	1, 098, 610
1889	8, 466	175, 000	....	588, 923	62, 658	1, 295, 159
1890	8, 466	175, 000	....	494, 476	55, 625	1, 149, 776
1891	1, 935	40, 000	....	429, 811	45, 022	930, 614
1892	4, 233	87, 500	....	399, 526	43, 909	907, 601
1893	8, 515	176. 000	....	379, 535	47, 247	976, 603
1894	6, 047	125, 000	....	530, 530	54, 605	1, 128, 688
1895	12, 095	250, 000	....	1, 266, 964	100, 806	2, 083, 674
1896	14, 514	300, 000	....	1, 788, 206	133, 274	2, 754, 774
1897	120, 948	2, 500, 000	131, 817	2, 724, 657	291. 582	6, 027, 016
1898	483, 893	*a* 10, 000, 000	142, 218	2, 939, 852	666, 445	13, 775, 420

a Estimated officially.

The Yukon figures are officially stated to be approximations only. The value of the gold has been obtained as nearly as possible, and from this the number of fine ounces have been calculated.

SILVER.

For many years silver was produced in all the eastern provinces of Canada as well as in British Columbia, but in 1893 its production ceased in Ontario and in 1896 it reached a low ebb in Quebec; in 1897, however, it began to revive.

SILVER, ANNUAL PRODUCTION.

[From Report of the Geological Survey of Canada.]

Calendar year.	Ontario.		Quebec.		British Columbia.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Ounces.		*Ounces.*		*Ounces.*		*Ounces.*	
1887	190, 495	$186, 304	146, 898	$143, 666	17, 690	$17, 301	355, 083	$347, 271
1888	208, 064	195, 580	149, 388	140, 425	79, 780	74, 993	437, 232	410, 998
1889	181, 609	169, 986	148, 517	139, 012	53, 192	49, 787	383, 318	358, 785
1890	158. 715	166, 016	171, 545	179, 436	70, 427	73, 666	400, 687	419, 118
1891	225, 633	222, 926	185, 584	183, 357	3, 306	3, 266	414, 523	409, 549
1892	41, 581	36, 425	191, 910	168, 113	77, 160	67, 592	310, 651	272, 130
1893	....	8, 689	....	126, 439	....	195, 000	....	330, 128
1894	....	....	101, 318	63, 830	746, 379	470, 219	847, 697	534, 049
1895	....	....	81, 753	53, 369	1, 496, 522	976, 930	1, 578, 275	1, 030, 299
1896	....	....	70, 000	46, 942	3. 135. 343	2, 102, 561	3, 205, 343	2, 149, 503
1897	5, 000	2, 990	80, 475	48, 116	5, 472, 971	3, 272, 289	5, 558, 446	3, 323, 395
1898	85, 000	49, 521	74, 932	43, 655	4, 292, 401	2, 500, 753	4, 452, 333	2, 593, 929

The silver of Quebec comes from ores mined in the eastern townships, which are utilized as a source of sulphur in acid making. Besides sulphur this ore carries from 1 to 2 ounces of silver per ton.

After four years of idleness preparations were made in 1897 to resume work on the Ontario silver mines. In that year, however, only the old dumps were worked, contributing all the silver of the province.

In 1898 fresh work was begun.

The ounces given in the above table reported by the geological survey are fine, and the value is commercial valuation. The coining value for the years 1896–1898 would be $4,144,283, $7,186,678, and $5,756,552, respectively.

Canada's Mineral Production in 1898.

A very interesting summary of the mineral production of the Dominion of Canada for 1898 has just been published by the Canadian geological survey. The returns are not yet all in, but the pamphlet shows that the output for the year 1898 is considerably ahead of the previous year's record.

Of the total output of metallic products, valued at $21,622,601, $13,700,000 was in gold, $10,000,000 of this representing the yield of the Yukon district. Silver (fine, in ore, etc.) was produced to the value of $2,583,298. The other minerals were: Copper (fine, in ore, etc.), $2,159,556; nickel (fine, in ore, etc.), $1,820,838; lead (fine, in ore, etc.), $1,206,399, and iron ore, $152,510.

The output of nonmetallic substances was $15,884,596, of which coal represented more than half, viz, $8,227,958. Building material (including bricks, building stone, lime, sand, gravel, and tiles) was valued at $3,600,000; petroleum, $981,106; asbestus and asbestic, $486,227, and Portland cement, $981,106.

The estimated value of the mineral products not returned is put down at $250,000, thus bringing the total value of the mineral product of the country last year to $37,757,197, or $9,095,767 more than 1897, when the value was $28,661,430. The following extracts are from the pamphlet:

> Compared with 1886, the first year for which statistics were issued, we find an increase in the value of mineral products in thirteen years of nearly 270 per cent. When it is remembered that in the same period the increase in the population has been only about 14 per cent, it will be evident that the proportional importance of the mining industry to the country is very much greater than at the beginning of the period dealt with. Thus, the per capita value of the mineral production of the country has increased from about $2.20 to $7.20.
>
> Of the gold output, the main feature was the large increase in that of the Yukon. This accounts for $7,500,000 of the enlargement, which is three times as great an estimate output as that for last year. With the exception of the gold washings of the Sascatchewan River, in the Northwest Territory, there were increases in all the other districts of the Dominion.

There was an increased output of coal in all the different districts, and a gain of 50 per cent in the output of copper in the Province of Ontario. A rise in the price of this metal makes the proportional increase in value greater than that for the quantity. There has also been an increase in the output of nickel, but a decrease in lead, silver, and asbestus.

Production of Gold in Nova Scotia in 1898.

[From the Report of the Department of Mines, Nova Scotia, for 1898, p. 33.]

> The returns for the year ending September 30 show that 31,104 ounces 17 pennyweights of gold were extracted, as compared with 26,963 ounces 14 pennyweights 2 grains (corrected figures) for 1897. The returns for this year are fully up to date.

TABLE SHOWING THE GOLD PRODUCT OF NOVA SCOTIA, 1862-1898.

GENERAL ANNUAL STATEMENT.

[From the Report of the Department of Mines, Nova Scotia, for 1898, p. 74.]

Year.	Gold extracted.			Year.	Gold extracted.		
	Ozs.	*dwt.*	*gr.*		*Ozs.*	*dwt.*	*gr.*
1862	7,275	0	0	1882	14,107	3	20
1863	14,001	14	17	1883	15,446	9	23
1864	20,022	18	13	1884	16,059	18	17
1865	25,454	4	8	1885	22,202	12	20
1866	25,204	13	2	1886	23,362	5	13
1867	27,314	11	11	1887	21,211	17	18
1868	20,541	6	10	1888	22,407	3	10
1869	17,868	0	19	1889	26,155	6	13
1870	19,866	5	5	1890	24,358	9	9
1871	19,227	7	4	1891	23,391	0	0
1872	13,094	17	6	1892	21,080	3	18
1873	11,852	7	19	1893[a]	14,030	5	7
1874	9,140	13	9	1894	14,980	7	13
1875	11,208	14	19	1895	22,112	17	21
1876	12,038	13	18	1896	25,596	14	6
1877	16,882	6	1	1897[b]	26,579	19	21
1878	12,577	1	22	1898	31,104	17	0
1879	13,801	8	10				
1880	13,234	0	4	Total	685,551	5	14
1881	10,756	13	2				

[a] Nine months only.
[b] Corrected figures, 26,963 ounces 14 pennyweights 2 grains.

NOVA SCOTIA GOLD MINES.

[Written for the Engineering and Mining Journal by George W. Stuart.]

Nova Scotia during 1898 produced 31,105 ounces of gold from 86,331 tons of material milled. The highest record previous to this was in 1867, when 27,314 ounces was reached. Thus it will be seen that 1898 exceeds all previous years by 3,791 ounces. It may now be confidently said that gold mining in Nova Scotia has settled down to a permanent business—an industry in which very little speculation remains.

The whole system of mining and milling is undergoing a complete and entire change. Formerly the small rich veins alone were worked—those that would give 1 ounce or more per ton—and although there may have been several parallel veins within a few feet, sometimes inches, worth less, and the intervening slates auriferous as well, yet the small "gilt-edged" ones alone were worked, and so soon as the yield in those declined they were abandoned. To-day the greater portion of the gold is obtained from the wide belts, some of them reaching 40 feet and more; and it is found that, because of the excellent facilities, cheap labor and supplies, and the improvements in machinery, rock yielding as low as $2 per ton can be made to pay a satisfactory profit over and above all working expenses and interest on capitalization. The mills that are being erected will crush from 3 to 4 tons of ore per stamp per day, while formerly less than 1 ton was put through.

Some idea of the changed condition of things may be understood when it is shown that in 1867 it took 218,894 days' labor to produce 31,388 tons of ore, which yielded 27,314 ounces of gold, while in 1898 it took but 186,212 days' labor to produce 86,331 tons of ore, which yielded 31,105 ounces of gold. The average value of Nova Scotia gold is $19.50 per ounce. Thus it will be seen that while $18 per ton was obtained in the sixties, in many cases leaving no margin of profit, in 1898 only $7 per ton has given the largest output of any year in the history of mining and, what is of much greater importance, larger profits on the capital invested. Several companies have paid from 20 per cent to 40 per cent dividends on the year's operations, and not one well-equipped mine has sunk money.

Now that it has been conclusively demonstrated that we have large numbers of wide belts of low-grade ore that will pay handsomely when worked properly, it remains only for Nova Scotia to increase the milling capacity, which, up to this time, has not only been small, but inferior. The majority of the mills have but 5 or 10 stamps, a few 20, and but one 40, the Richardson, where they have a belt of ore yielding $2 per ton, which is worked at a total cost of $1.60. This by way of illustration.

On the Dufferin, which was purchased by the Montreal-London Gold and Silver Development Company, Limited, about a year ago, there is being erected a 60-stamp mill; 20 stamps were started up a week ago. This mill will in all respects be a modern one, with automatic appliances for handling the ore, breakers, self-feeders, and concentrators; also to save what we have in the past permitted to go to waste. The capacity per stamp of this mill, as demonstrated by the 20 now in commission, is over 4 tons per day of twenty-four hours.

The Blue Nose mill, at Goldenville, has 20 stamps. Last month's run was 1,500 tons, which yielded 650 ounces of gold, value, $12,775; total cost of production, $4,500.

It has been said of Nova Scotia gold veins that they are uncertain, spotty, pockety, and not to be depended on. Why has such an impression gone abroad? Why should Nova Scotia mines be thus condemned on this ground more than those in other parts of the world, when the geological structural occurrence of the ore bodies shows persistent continuity?

That there are recurring relatively rich and poor parts in all gold-bearing formations every well-informed man knows, but we hear less about it in other countries than in Nova Scotia. This is entirely due to the very limited extent and contracted manner in which the Nova Scotia ore bodies have been worked, and this has been due to the failure to recognize the economic importance of the geological features which makes it absolutely necessary in successful operation to carry out extensive development work in advance of mill requirements, so as to develop ore reserves adequate to provide against the inevitable recurring high and low grade zones.

Nova Scotia mines have never had the benefit of such a system. Operators have always attached too much importance to a temporary drop in the grade of the ore. Almost the moment the ore ceases to look like pay there is a suspension of work, and this condition of things has by no means been entirely due to want of capital, but rather to ignorance and consequent want of confidence.

An extraordinary instance of this kind occurred in one of our districts not long since. A company was organized to purchase some valuable areas that had produced in former years, by the old system of mining, something like $1,750,000. After visiting the property several times with their engineer and making entensive inquiries from the old operators and workmen they concluded to purchase, and made a payment on account. There was no scarcity of capital with these gentlemen; they were going to revolutionize gold mining forthwith. On one of the ninety-odd areas in the aggregation purchased they unwatered an old open-cut pit on the lowest grade belt of ore on the property, which had been worked previously on royalties, and from this belt they took out rock left by tributers, as too poor to pay, to the amount of one hundred and forty-odd tons; 100 tons of what they considered the best of this ore was sent to the mill to be crushed, from which they claim to have got but $2 per ton. They admitted that $2 per ton would pay, yet because a yield equal to that reported as the best the tributers had obtained was not obtained out of ore left because of its low grade, and because they claimed there was not the width of "white quartz" in the belt they expected, and more "black rock" than they expected, they threw up their hands, declared they were cheated and defrauded, and went to the courts for redress and to recover their deposit. One of the gentlemen at the trial said, "I expected that it would yield 3 or 4 pennyweights to the ton, but we did not attach much importance to the yield. I would estimate that rock higher if it were white rock, with the same quantity of gold in it." This gentleman was evidently after a white-quartz mine and not a gold mine. As a matter of fact, the balance of all the rock or ore these people took out and called "black rock," not quartz, and of no value in their estimation, was gathered up and sent to the same mill they crushed in, and out of 42 tons 10 ounces of gold was obtained. This operation by these gentlemen was called a test of the property, although they did not sink one foot on any part of the mine. This is an illustration of the way things have been done in the past.

NORTHWEST TERRITORY.

THE SASKATCHEWAN REGION.

[From the Report of Geological Survey of Canada, Mineral Statistics and Mines, pp 179, 180.]

Mining for the precious metals in this region has been prosecuted for the past thirty years or more. Gold has been found upon the South Saskatchewan River, the Peace River east of the mountains, and upon the McLeod, Athabasca, Bow, Oldman, and other rivers, but the North Saskatchewan, for about 60 miles above and a similar distance below Edmonton, has been the chief field of operations, and has attracted the largest number of miners. The early miners are said to have made from $20 to $30 a day, but from $1 to $1.50 is now considered a fairly good daily average. In 1897 it is estimated that there were at work upon the whole river, for shorter or longer periods, from 300 to 350 men.

The bulk of the output, even during the past three years, has been taken out by the "hand miners" working with pick and shovel, and employing the rocker or grizzly.

Mining by means of dredges did not begin until about 1895, when Mr. Benoit, formerly manager of the branch of the Jacques Cartier Bank at Edmonton, undertook the management of two mining dredges and began mining on a larger scale than had hitherto been attempted.

The number of dredges has gradually increased, until 1897, there were in all twelve dredges which have been operated more or less continuously. Most of these dredges are, however, quite small and as yet very imperfect and wasteful in their operations, and not capable of saving even as large a proportion of the gold as is done by the "hand miners." Some six larger dredges were working during the year. Improvements are, however, being constantly suggested, and no doubt in the near future much larger returns will be obtained with the same labor and cost of operation.

PROVINCE OF BRITISH COLUMBIA.

The value of the placer gold produced in British Columbia in 1898 was $643,346, and of lode gold $2,201,217, a total of $2,844,563.

The silver produced amounted to 4,292,401 ounces, of the commercial value of $2,375,841.

The following table shows the yield of placer gold in British Columbia since 1858:

YIELD OF PLACER GOLD PER YEAR TO DATE.

Years.	Value.	Years.	Value.
1858	$705, 000	1880	$1, 013, 827
1859	1, 615, 070	1881	1, 046, 737
1860	2, 228, 543	1882	954, 085
1861	2, 666, 118	1883	794, 252
1862	2, 656, 903	1884	736, 165
1863	3, 913, 563	1885	713, 738
1864	3, 735, 850	1886	903, 651
1865	3, 491, 205	1887	693, 709
1866	2, 662, 106	1888	616, 731
1867	2, 480, 868	1889	588, 923
1868	3, 372, 972	1890	490, 435
1869	1, 774, 978	1891	429, 811
1870	1, 336, 956	1892	399, 526
1871	1, 799, 440	1893	356, 131
1872	1, 610, 972	1894	405, 516
1873	1, 305, 749	1895	481, 683
1874	1, 844, 618	1896	544, 026
1875	2, 474, 004	1897	513. 520
1876	1, 786, 648	1898	643, 346
1877	1, 608, 182		
1878	1, 275, 204	Total	59, 960, 819
1879	1, 290, 058		

The gold and silver production of the lode mines since 1887 is shown below:

PRODUCTION OF LODE MINES.

Years.	Gold.		Silver.	
	Ounces.	Value.	Ounces.	Value.
1887			17, 690	$17, 331
1888			79, 780	75, 000
1889			53, 192	47, 873
1890			70, 427	73, 948
1891			4, 500	4, 000
1892			77, 160	66, 935
1893	1, 170	$23, 404	227, 000	195. 000
1894	6, 252	125, 014	746, 379	470, 219
1895	39, 264	785. 271	1, 496, 522	977, 229
1896	62, 259	1, 244, 180	3, 135, 343	2, 100, 689
1897	106, 141	2, 122. 820	5, 472, 971	3, 272, 836
1893	110, 061	2, 201, 217	4, 292, 401	2. 375, 841
Total	325, 147	6, 501, 906	15, 673, 365	9, 676, 901

ATLIN GOLD FIELDS.

[Extracts from the Annual Report of the Minister of Mines for the year ending December 31, 1898, pp. 963-970. Victoria, British Columbia.]

Public attention has recently been so much drawn to the placer discoveries in northern Cassiar, in the neighborhood of Atlin Lake, that the best available information has been collected with reference to this little known district, which will be found in detail in the body of this report.

A sketch map has been prepared by the lands and works department from data thus collected, showing that portion of the country.

The information as to the actual amount of gold brought out in 1898 is somewhat uncertain, but, by collecting data regarding amounts of which actual figures have been obtained, it is estimated that the output was about $75,000.

The placer discoveries at Atlin, while in themselves important, have still greater importance in drawing public attention to the existence—well known locally—of the great placer gold belt extending the whole length of the province from Wild Horse Creek, in East Kootenay, near the United States boundary (which is credited with a total output of some $20,000,000), in a northwesterly direction along the western slope of the Rockies through the famous Cariboo and adjoining gold fields and still farther on through Atlin to the Yukon gold fields in the Northwest Territories.

Between Atlin and Cariboo there is still a great extent of country which has as yet been little prospected and which may eventually prove as rich as its neighbors on either side.

As already foreshadowed in last year's report, there is strong evidence to show that the gold of Atlin is not confined to placer workings. Samples of very rich gold-bearing quartz from prospects there have already been brought down, and upon these prospects some development will be made this coming year. Whether this district will eventually prove rich in lode mines it is too early to predict, as little attention has as yet been given to anything but placer gold. Samples of cinnabar have been received from there for assay by this department and found to contain 26 per cent mercury.

GOLD.

Placer gold.—While the output of placer gold has not regained the importance it held twenty years ago, still there is a material increase over last year—and, as a matter of fact, over any of the last ten years—showing that the gold is still unexhausted, though occurring under conditions rendering it only available by large operations. The placer miner has largely given way to the hydraulic plant.

The increase this year seems to be pretty well all along the line, each district showing a decided gain.

Free-milling gold.—The production of free-milling gold is surprisingly small, when one takes into consideration the amount of rich placer found in the country. Attention is being gradually drawn to this class of mining, and stamp mills are going up in several localities. The increased production of Camp McKinney and Fairview, in Yale district, and the returns from the Fern mine, in Nelson division of West Kootenay, indicate probabilities for the future. Something less than 200 tons of such ore has been milled at Alberni, on Vancouver Island, and fair results are reported as having been obtained.

So far all the free-milling properties have found it necessary to use some form of concentration for the collection of gold not existing in a free state, which concentrates have usually been sent to the smelters for treatment.

Cyanide plant.—The first working cyanide plant in British Columbia has been erected, and is situated on Philipps Arm, 120 miles up the coast from Vancouver, in connection with the Doratha Morton mine, a full description of which appears in this report.

The plant has only been in operation for a couple of months, but has already produced satisfactory results, which it is hoped may continue, as the continued success of this the pioneer of its class in the province will be looked forward to with much interest, as indicating what may be expected from the large low-grade, gold-bearing quartz veins occurring along the coast line.

Smelting gold ores.—The ores of the Rossland camp may be more appropriately classed as gold ores than as copper ores, inasmuch as the values of the former metal are proportionately much greater. The output of Trail Creek division is almost entirely from ores of this character, sulphides of copper and iron carrying gold and silver.

These ores are being treated by smelting at Northport, Wash., the Trail smelter, or at the Hall mines smelter, Nelson. The copper acts as a collector for the gold and silver, a matte being produced, the greater part of which is brought forward to refined copper, cast into anodes, and sent to some electrolytic refinery for the separation of the gold and silver.

SILVER—LEAD.

Here these two metals go together, their source being chiefly argentiferous galena, and mined principally in Ainsworth and Slocan divisions of West Kootenai. While they still hold the place of premier importance in our year's production, the output has this year considerably diminished for the reasons previously given.

For the two divisions mentioned the grade of shipping ores seems to have been maintained, as may be calculated from the statistics, and averaged on over 32,000 tons of ore 97 ounces of silver to the ton and 47 per cent lead.

The galenas of East Kootenai are not so high grade in silver, the North Star holding its own this year with about 50 ounces of silver and 50 per cent lead.

Developments of galena properties in East Kootenai lead to the expectation of shipments next year from the Moyie mines and from the Sullivan, fully described elsewhere.

Discoveries of galena in quantity have also been made in Windermere division of East Kootenai, but remain to be proven by further development.

Few "dry ores" of silver have as yet been developed, though a few such exist in West Kootenai.

The Hall mines, of Nelson, a silver-copper proposition, carrying about 15 to 20 ounces of silver to the ton and 2 to 2½ per cent copper, have smelted over 45,000 tons of ore of this class this past year.

KLONDIKE OUTPUT FOR 1899.

Under date of April 29, 1899, Consul Brush, of Clifton, says:

An authority whose estimates have heretofore proved conservative brings word from Dawson that the wash up from the Yukon this year will aggregate $19,000,000, apportioned as follows: Eldorado, $2,500,000; Bonanza, $2,500,000; French Hill, $1,500,000; Gold Hill, $1,500,000; Big Skukum, $1,000,000; Little Skukum, $1,000,000; Dominion, $4,000,000; Hunker and Quartz, $5,000,000; total, $19,000,000. These figures leave out of consideration a number of important locations, including Sulphur Creek, Stewart River, Upper Klondike, and Scroggie Creek.

Consul McCook sends, under date of May 24, June 8, and June 20, reports in regard to conditions in Dawson City and vicinity. The city, he says, is being rapidly rebuilt after the recent fire. The following is from his report:

Instead of $20,000,000, which was reported as the probable output for this district for the past twelve months, I am informed that $10,000,000 will fully cover the product. Reports from Alaska indicate that more gold will be found there than will ever come from this territory. Alaska is rich in placer mines, but requires development. Very little prospecting was done here last winter. The miners simply ate up their grub and waited for some one else to report discoveries of gold. If the indications are good they go on a stampede, dig a hole or two, and if they can not find pay dirt at once they say the creek is no good and return.

THE PRODUCTION OF GOLD IN THE KLONDIKE.

[From the Économiste Français, January 21, 1899, by A. de Foville.]

Much has been said of the Klondike during the last eighteen months and not without reason. We now know that the immense valley of the Yukon, in the northwestern part of North America, embraces large auriferous regions. That gigantic stream of water receives numerous affluents. The Klondike is one of them, and the mountainous wall mass whose waters it collects has been the richest theater of the gold discoveries. Despite the extreme rigor of the almost polar climate, despite the thousand difficulties which have to be overcome to reach the district and to live there, gold seekers have rushed in crowds to that distant corner of the globe, and an entire city—Dawson City—has grown up almost in a moment on the mud fields which stretch out at an angle formed by the Yukon and the Klondike. Gold, which has wrought so many wonders, had never yet performed any so unexpected. Other mines with a great future before them exist in this old Russian America, which in 1867 came into the possession of the United States under the name of Alaska. Henceforth the Yukon Valley will figure prominently in the list of the great centers of the production of gold.

We do not intend to describe here this northern California, which had so many surprises for its first explorers, nor to relate the strange life there led. It has been done by others and the lovers of strange adventures have been able to follow, step by step, the pilgrims who went to seek their fortunes in the Yukon, and who most frequently met only with disasters or wretchedness in all its forms. We need only recall in a few words the thousands of miles which they had first to go over, both on land and sea; the heavy material with which they were encumbered; the confusion that reigned in the improvised ports into which they were cast; the bickerings of the custom-houses; the knavery of the Indians; the terrible ascent of Chilkoot Pass, which they have had to make ten times in succession because no one is able to carry over these frightful roads more than one-tenth of the regulation baggage; then the interminable descent toward the Yukon; the soft-wood boats that cost as much as yachts, and the draft dogs that cost more than horses; the open-air camping on the unexplored shore, the cold, hunger, scurvy, and other diseases. Lastly, arrived in the "city," if they ever arrive there, bitter deception follows golden dreams. The mountain, still more inhospitable than the valley; vermin in the huts, and mosquitoes everywhere; quarrels and robbers in the gambling houses; all the good places along the creek taken, the registration of grounds vitiated by barefaced frauds; wages of $10 a day if one can find employment, but rendered illusory by the intermittent nature of labor, and the incredulous dearness of all things. Here we desire to place ourselves only at the point of view of the production of gold, and to inquire what the Klondike may add to the annual harvests of gold, of which the civilized world still seems so greedy notwithstanding their rapid increase. The question is important and the answer difficult. Statistics do not yet flourish at such latitudes and to reach plausible estimates it is necessary to guard against two contradictory causes of error. These causes are, on the one hand, the prospectuses and everything like them, of the mining companies, and the venality of newspapers, which is greater in America than in Europe. By means of them the transportation companies have succeeded in making a part of the public believe that the northern gold fields yield already more than $40,000,000 per annum. But the error is sometimes made in the opposite direction, and when one sees so many immigrants returning from the Klondike more destitute than when they went there, skepticism becomes incredulity.

More than $40,000,000 on the one hand—less than $4,000,000 on the other. Such are the extreme affirmations which have to be reconciled. The official who seems best qualified to confront reality with hypothesis is the gold commissioner of Dawson City. His publication should at least enable us to assign a minimum to the production of the district, since all the gold extracted from the mines is subject to a duty of 10 per cent, this duty being doubled in the case of some privileged claims which produce more than $500 gold per week. Now, the amount of duty paid at the end of the summer amounted to about $700,000, which supposes a gross extraction of $7,000,000. And this is certainly much below the truth. It is hard to imagine anything less truthful than registered declarations. It may happen exceptionally that, inspired by the hope of obtaining a better price for his lot, a grantee may declare more gold than he has really obtained. But the contrary is infinitely more frequent; it being almost impossible to check the output, and the tax being very unpopular, the Government is frequently defrauded.

Taking into account these fraudulent dissimulations, and also certain exemptions, we calculate that there may have been a total product of about $10,000,000. Four months ago the calculations of the banks and mining companies, which generally agree, warranted a probable estimate of $9,000,000 as the output—$4,000,000 for the El Dorado, $3,000,000 for the Bonanza, $1,000,000 for the Hunker and the Bear, and $1,000,000 for the other affluents. At present it can be stated that this estimate was very moderate, for on the 1st of November the information of the mints of the United States and the private refineries was to the effect that the arrival of gold from the Yonkon amounted to $10,055,300.

Doubtless the Klondike did not produce all of this, but we are assured that the other beds, those situated downstream on American territory, added only about 10 or 12 per cent to the quantities extracted from the territories served by Dawson City.

Then we must not reason as if all the gold extracted was necessarily exported. Local trade keeps back a part as does also speculation. The country in which gold dust performs the function of specie and in which the current rate of interest is from 5 to 10 per cent per month must necessarily keep for the transaction of its own business some of the millions of gold obtained from its placers. Everything considered, we are inclined to place at $11,000,000 or $12,000,000 the gold production of the Klondike for the year ended December 31, 1898. This is a very respectable sum. The Transvaal required at least four years to produce as much. We do not, of course, infer that in ten years the Klondike will be what the Transvaal is to-day. But we can not help asking the question, Who would have believed a short time ago that such wealth could be obtained from a country as forsaken, as inaccessible, as uninhabitable as the Klondike?

We may say that the year there is only of six months' duration, because from autumn to spring an almost uninterrupted night prevails, as well as terrible cold, the centigrade thermometer marking sometimes as low as 50° below zero. Even in summer gold washing is exceedingly difficult, and these 20,000 kilograms of fine gold have been extracted from the eternally frozen soil only by the most primitive processes. It is therefore certain that gold is abundant in the country. But from this abundance, it has been demonstrated, it must not be inferred that there has been sufficient justification of the conduct of all those who have rushed pell-mell to the Pole. The lottery of the Klondike has already had its victims, and will have still more. Twelve million dollars is the output, while the number of those who have sought their fortunes there reaches 40,000, which would give about $3,000 to each person. Nothing can be more significant than this simple comparison of figures.

There is a saying in the United States which, when first heard, seems paradoxical: "Every dollar taken from the earth has cost more than a dollar." This is not always and everywhere true, but thus far it has proved very true so far as the Klondike is concerned, if one can rely on the statements of the Department of Labor at Washington. Its bulletin says that it has been shown that 40,000 men who started for the gold fields of the Yukon reached there between the 15th of July, 1897, and the 15th of July, 1898. It is admitted that at least 20,000 others started for the gold fields, but were not able to reach their destination. Each of these 60,000 individuals represent an expenditure of $500 for the cost of equipment and transportation, a total of $30,000,000. We may estimate that $5,000,000 was spent in the use of navigation lines on rivers or high seas and in the creation of commercial establishments. Here, then, we have $45,000,000 expended, and it can not be doubted that in three cases out of four the investment was absolute loss. Now, what offset have we to this enormous expenditure? Twelve million dollars, perhaps, since that appears to have been the production of gold. This mode of calculation, it seems, is not above criticism. It would be proper to add to ten and a half millions of gold put in circulation the value acquired by all the lines which had no value previously, because they were only so much desert land covered by snow, some parts of which now pay as high a rent as if they were in Paris.

On the Bonanza, at the place called "Discovery," three consecutive lots of about 450 feet each running along the stream were purchased for $340,000. At Dawson City lots bordering on the principal street doubled in price in the spring of 1898, going from $100 to $200 per foot. On the bank of the river a narrow strip of something over 960 feet by 30 feet was rented for $30,000. This was before the disastrous fire, the news of which reached here about the end of 1898, but speculation in real estate only became more active in consequence. One hundred houses burned is not a matter of great consequence in America. When Vancouver, a city which was preparing for a great exposition, had been not long since totally destroyed by fire, the first care of the authorities was to proclaim, "urbi et orbi," that the New Westminster great exposition would be opened none the less at the date fixed upon, just as if nothing had happened. The people had six weeks before them. Property is not a negligible quantity in the country in which it comes into existence so quickly and which, when destroyed, is restored so rapidly.

But if we wanted to draw up a complete balance sheet we would have to enter in it other losses than those suffered by the gold seekers who did not find all that they sought for. In the first place, these poor devils have lost not only their money, but also their labor, their pains, their health, and sometimes their lives. The sanitary condition of Dawson is deplorable. Last winter the scurvy carried away numerous victims, especially among those recently arrived. Diseases of the respiratory organs and other diseases are frequent. The water of the Yukon is notoriously unhealthy and spring water exceedingly scarce. Medical attendance is very costly. The number of doctors is increasing daily, and at the end of June there were seventy-five in the city, ten or twelve of whom were kept very busy, but their competition had not yet brought the price of a visit lower than $10, instead of $17 (an ounce of crude gold), and the poor people in Dawson have not the advantages of the hospital, for boarding at such an institution costs $5 a day. A physician's visit to the hospital is $5 more, besides which there are the fees of the surgeon, if one has to engage his services. Dawson has a kind of night refuge in which from ten to twelve people sleep. The cost of a night's lodging is $1.50.

Among the losses should also figure all the capital devoured by suspicious companies which the Klondike mines have served as a pretext to exploit. Many millions have been wasted in this way, and these millions have come from the relatively poor. Under these conditions there is no exaggeration in saying that for every dollar extracted from the sands of the extreme north more than a dollar has been expended. But it will not be always thus. Civilization is already beginning to clear a way to the banks of the Yukon. Since June last Dawson has had a theater and a newspaper. The Pavillon troupe was composed last summer of 3 actors, 6 actresses, and 8 ballet dancers. The two weekly papers, the Midnight Sun and the Nugget, are sold for 10 cents apiece, while during the winter every paper that came from the United States cost at least $2. Successful efforts have already been made in manufacturing and agricultural production, and the methodical utilization of streams as a motive power is being studied at a great many points. Market gardening is carried on at a short distance from the city. The vital question is naturally that of means of transportation, and even there the heroic times are past. Last winter, before the breaking up of the ice, the wagons between the city and the mines had to be paid for at more extravagant prices than ever per load. During the course of the summer some hundreds of horses and mules were obtained, and they rendered great service. Navigation both up and down stream is being made, and the crossing of the high mountain chain that defends the coast will soon become easy. Hitherto it has been exceedingly difficult and dangerous. An electric tramway has been constructed along the Chilkoot, and it costs only 10 cents per pound to carry packages from Dyea to Lake Linderman. On the other defile, the White Pass, there is being constructed from Skagway a little railway, narrow gauge, which, beginning with 1899, will reach the shores of Lake Tagish. It is hoped that it will be possible to continue it as far as Fort Selkirk, the head of navigation by the line of steamers. The voyage going and returning will thus become of less length, less hard, less dangerous, and less onerous. These distant solitudes into which gold has infused life are becoming nearer and nearer to the rest of the world, and some day perhaps honest families will there obtain a livelihood on the field of battle where the struggle of men with nature began by being so destructive.

NEWFOUNDLAND.

GOLD EXTRACTED FROM ORES.

According to information furnished this Bureau by Mr. R. P. Rothwell, editor of The Mineral Industry, New York, the production of gold at Swansea, Wales, from Newfoundland ores, was, in 1896, 3,000 fine ounces Troy, and the same amount was also extracted in 1897. This number of fine ounces equals $62,015.

As no returns have been received for 1898, the 1897 figures are assumed to have been the product.

CENTRAL AMERICA.

No official information has been received by this Bureau regarding the gold and silver product of the Central American States since 1894, but the following estimates are made, based on exportations from those States for the years 1896, 1897, and 1898:

GOLD.

Countries to which exported.	1896.	1897.	1898.
United States	$370, 824	$463, 946	$473, 740
Great Britain	....	....	....
Germany	1, 428	1, 904	....
Total	372, 252	465, 850	473, 740

SILVER.

[Commercial value.]

United States	$505, 936	$482, 569	$409, 573
Great Britain	3, 650	282	12, 872
Germany	35, 462	4, 284	....
Total	545, 048	487, 135	422, 445

The gold product of the Central American States for the years 1896, 1897, and 1898 may, therefore, be taken at $372,252, $465,850, and $473,740, respectively, and the silver product at $545,048, $487,135, and $422,445, commercial value, representing 808,676, 811,892, and 716,008 ounces, fine, at a coining value of $1,045,561, $1,049,719, and $925,748, respectively.

COSTA RICA.

LEGATION OF THE UNITED STATES OF AMERICA,
August 8, 1899.

SIR: We last had this pleasure on March 22 and now have the honor to inclose herewith an official report of the mines being developed or worked in the Republic of Costa Rica. By this mail we also send you a mining report, printed by order of the Government in 1889, which is the last printed document on this specialty issued from the Government press.

I am informed by an American mining expert, and now superintendent of a Costa Rica mine, that there are numerous rich gold quartz ledges here, but that they are very often "broken off" by volcanic action, necessitating lateral drifting, frequently on both sides, to "pick up" the ledge when it abruptly terminates.

You will notice that the inclosed report claims an annual report of gold export amounting to $400,000 gold. Possibly this may be overstated.

The abundance of water power is an advantage which can be claimed for mining in Costa Rica, while the climate at the mines is generally healthy.

With assurances of my respect, I beg to remain, sir, your obedient servant,

WILLIAM LAWRENCE MERRY,
United States Minister.

Hon. GEO. E. ROBERTS,
Director of the United States Mint, Washington, D. C.

SAN JOSÉ, *August 4, 1899.*

SIR: I have the honor to reply to your note of yesterday, which refers to that of April 12 last, both requesting information regarding the development of mines, their products, methods of working, and existing legislation affecting them.

Regarding the last point, the judge of administrative litigation, to whom all matters regarding the mines are referred, informs me that such laws as are in force may be reduced to the provisions contained in the mining statute of June 26, 1830, and the laws of July 10, 1848, of October 16, 1855, of June 8, 1864, of July 28, 1868, and of May 10, 1869. Ordinary suits at law are tried under the above-mentioned statute without reference to the other laws cited, since almost all of the latter refer to matters of administration.

The law of 1869 states that the minerals, copper, iron, and lead, so far as proprietary rights are concerned, shall be subject to the provisions of the mining statute, annulling the amendment made by the law of 1855. It likewise provides that only reefs, placers, or deposits of metals, ores, or precious stones, may be entered and taken up as private property, and in Article II, it enlarges and extends the provisions laid down in sections 42, 48, and 88 of the statute. The law of 1869 allows aliens to enter lands under the same conditions as natives, which hitherto had not been permitted.

Examination of the preceding laws leads to concurrence, in the opinion of the judge of administrative litigation, that a new mining law should be enacted, which, having present conditions in view, should regulate the manner of acquiring mines as well as the obligation of the miners and the rights of the owners of the lands where the mines are situated.

Numerous claims to mines in various parts of the country, especially on the Pacific slope, have been filed. It would not be difficult to make an extract of the claims filed between 1893 and the present time, but for this work to be of any value in this investigation it would be necessary to ascertain which of these claims are still held and operated, since many necessarily have lapsed by the operation of the law, which requires that they be worked to retain title.

Whenever the operation of a mine assumes any importance it is at once known; therefore, if any of these claims are of any consequence they will be found in the following list of mines in operation:

(In 1895 the bureau of statistics published a list of mines known in 1892, and mention has already been made of claims entered from 1893 to the present time.)

List of Mines in the Republic in 1892.

Name.	Location.	Class of mineral.
La Trinidad	Ciruelitas	Gold and silver.
La Union	do	Do.
Santa Rita	do	Do.
Bella Vista	do	Do.
Costa Rica	do	Do.
La Zagala	do	Do.
La Zamora	do	Do.
Buenaventura	do	Do.
San José	do	Do.
Sacra Familia	Monte Aguacate	Do.
La Minita	do	Do.
Mina de los Cartros	Corralillo	Do.
San Rafael	do	Do.
Mina de los Oreamunos	do	Do.
Machuca	do	Do.
Trinidad del Aguacate	do	Do.
Quebrada Honda	Quebrada Honda	Do.
Pena Grande	Cerros de San Ramón	Do.
Mina de Acosta	Margenes del Rio Jesús	Do.
Las Cáncovas	Cartago	Copper.
Palmares	Cordillera del Aguacate	Gold. silver, and lead.
Mancuerna	Costa del Sardinal	Copper.
Mata Palo	do	Do.
Puerta de Palacio	do	Do.
Hoja Chigues	do	Do.
Chapernal	do	Do.

The mines now in operation, according to information obtained recently, are as follows:

Name of mine.	Location.
Tres Amigos	Abangares.
La Trinidad	Miramar.
Minas Monte Aguacate	Monte Aguacate.
Thayer Mining and Milling Co.:	
Bella Vista	Miramar.
Montezuma	Do.
Costa Rica Union Mining Co., La Union	Ciruelitas.

Other mining enterprises are either projected or are erecting plants. Among them are Sindicato de Macacona, Minas de Cobre del Sardinal, Sindicato del Gnanacaste, Boston and Central American Mining and Development Company, Minas de Machuca Alta, Costa Rica-Pacific Gold Mining Company, and Mina San Gerardo.

Regarding these undertakings this office is unable to furnish any exact information, as it has received none from those interested.

Concerning mines in operation the following data have been collected:

Tres Amigos mine is situated in Abangares, canton of Cañas, province of Guanacaste, about 40 miles from Puntarenas, and has in addition to extensive beds of ores which assay from 1 ounce 10 pennyweights 8 grains to 3 ounces 16 pennyweights 4 grains of silver per ton, 2,000 hectares of fertile land, for the greater part wooded.

The working of this mine was begun about three or four years ago, but with such limited capital that they were scarcely able to erect 10 small stamps and a modest installation for treating the ore by the old quicksilver process.

In spite of this it has produced from 3,000 to 4,000 pesos a month, which has served to equip the mine with various and extensive appliances, to open new veins, to construct a cart road 50 kilometers in length, a good lodging house, and several small ones for the "peones" or laborers, and, lastly, a tramway for the transportation of the ore. Recently it has secured a loan which is to be used in installing a plant for the treatment of ores by the cyanide of potash method, from which great results are expected, judging by what has already been accomplished by attempts on a small scale. The new plant will treat 900 tons of ore a month.

LA TRINIDAD (MIRAMAR) AND MINES OF THE AGUACATE (DISTRICT OF THE SAME NAME).

Regarding these enterprises, Mr. Walter J. Ford says:

"Regarding La Trinidad, which belongs to an English company, we are now expecting an expert, who is coming to examine it, since thus far the operations of this mine have been of little importance and have been carried on only to preserve title.

"The same may be said of the mines of Monte del Agnacate, since these ores generally are intractable and require a costly plant for their reduction. Steps are now being taken, with the assistance of a foreign company, to secure the necessary plant.

"It is to hoped, as much for the interests of the country as for that of the persons directly concerned, that the cyanide process, which is about to be tried in the Tres Amigos mine and in the Miramar district, will yield good results. By the introduction of this process the mining industry in the Transvaal brought a great and lasting benefit to that country."

BELLE VISTA MINE (MIRAMAR, THAYER MINING AND MILLING COMPANY).

Regarding this mine, its manager, Mr. F. W. Conn, says:

"I take pleasure in submitting to you the following details regarding the Bella Vista Mining and Milling Company: Employees, 137.

Mines: Bella Vista, 2,500 feet of tunneling; Ojoche, 150 feet of tunneling; First Extension Bella Vista, 50 feet of tunneling. Power: Water, 80 horsepower. Equipment: Twenty stamps, 850 pounds each; cyanide plant, 30 tons per day; aerial tramway, 1,200 feet. Several veins which yield from 5 pesos ($5) up to 500 pesos ($500) in gold and silver."

MONTEZUMA MINE (MIRAMAR, THAYER MINING AND MILLING COMPANY).

The same gentleman, Mr. F. W. Conn, is manager of this enterprise, regarding which he gives the following particulars: "Employees, 151. Mines: Montezuma, 1,027 feet of tunneling; San Antonio, 805 feet of tunneling; San Rafael, 250 feet of tunneling; Quien Sabe, 75 feet of tunneling; Second Extension Bella Vista, 60 feet of tunneling; Popenoe, Cowderly, 110 feet of tunneling. Power: Water, 150 horsepower. Equipment: Twenty stamps, 850 pounds each (under construction); cyanide plant, 50 tons per day (projected). Several veins which yield from 5 pesos ($5) to 200 pesos ($200) in gold and silver."

COSTA RICA UNION MINING COMPANY.

Regarding this enterprise its manager, Mr. C. H. Colburn, says:

"The principal work has been done at the 'Santa Rita' mine, which is a very rich vein, averaging 12 to 15 feet in width, running almost northwest to southeast.

"This mine was formerly worked by means of four tunnels, judging by the depths to which they penetrate—300 feet—and by the excavations and the refuse a vast amount of mineral must have been taken from it.

"The value of the ore is not high, assaying from $8 to $10 per ton, still the product of a vein so wide, with the necessary facilities for extracting the metal, is enough to render its operation highly satisfactory.

"The ore is intractable, not milling freely, but more satisfactory processes are being tried concerning which particulars will be given when the experiments now under way have been concluded.

"The principal work now in process consists of repairs. A battery of 40 stamps is being placed in position; 20 are already in use, and the others will be installed in a short time.

"Owing to lack of water the plant has not been in operation long enough to enable a satisfactory estimate of the product to be made.

"The water which furnished the motive power is taken from a creek to the north, and is carried by a trench around the mountain until it discharges into an iron tube 14 inches in diameter; there is a fall of 350 feet. This power is sufficient for all the work for at least ten months in the year.

"There are numerous other veins which show indications of being valuable, among them, 'San Lucas,' 'Los Angeles,' and 'San Nicolas;' experiments are being conducted and when positive information has been obtained particulars will be furnished.

"There are now employed 75 to 100 laborers, and as the work is extended the number will be increased.

"What has thus far been accomplished in the Union mine leads to the belief that proper development of the property would bring ample rewards, and that the mining industry of Costa Rica would thereby secure the reputation it deserves.

"Regarding the methods of working, it appears that the extraction of the metal by the ordinary processes is difficult, but it is believed that the cyanide treatment will remove the difficulty.

"No exact statement of the product of the mines has been made, owing to the fact that, the export of bullion being entirely unrestricted, it is shipped in the majority of cases without the knowledge of the Bureau of Statistics; however, persons acquainted with the products of our mines, estimate the value of the gold exported in bars at no less than $400,000 in gold per annum."

Analyses of the bullion obtained from our mines have not been published, and we are unable to give data regarding the law concerning the exportation of gold and silver.

In 1891 the National Printing Works issued a work written by an English mining engineer, Mr. Melliss, regarding the mines of Aguacate and of Castros. This work, translated from the English by Don Manuel Carazo Peralta and annotated by Don Francisco María Iglesias, contains much valuable information concerning our mineral wealth. It would be well when sending the particulars above given to the American legation, to include a copy of this publication.

Your obedient servant,

W. VAN ARAGÓN,
The Director-General of Statistics.

SECRETARY OF STATE FOR FOREIGN AFFAIRS,
National Palace.

CHILE.

No official information has been received from Chile regarding the production of gold and silver since 1897. The Estadistica Comercial de la Republica de Chile, 1897, gives the exports of gold and silver in various forms for a series of years. The exports of gold in ore and bullion in 1896 were 922,511 pesos, of a United States value of $336,624.

Our minister, Mr. Edward H. Strobel, in 1897 reported that the mint in Chile purchased, in 1896, 752,031.53 pesos' worth of gold bullion, valued at $274,416, for coinage, presumably from the 1896 product. The exports, plus the amount purchased for coinage, equals $611,040, at which figures the product is taken for 1896. The exports of gold in ore and bullion in 1897 were valued at 933,703 pesos, equivalent to $340,708, at which figures the product for 1897 is taken, and in the absence of any returns it is assumed to have been the same for 1898.

Chilean exports of silver bullion and ore in 1896 amounted to 5,571,160 pesos, valued at $2,032,916 (commercial value). In addition to this the mint purchased, in 1896, 406,985 pesos' worth of silver, valued at $148,509 (commercial value).

The exports plus the amount purchased for coinage represents, at the average price of silver during 1896 ($0.674 per ounce, fine), 3,236,536 fine ounces, of a coining value of $4,184,612. The exports of silver in 1897 amounted to 4,261,987 pesos, of the commercial value of $1,555,199, which, at the average price of silver during 1897, viz, $0.60 per ounce, fine, represents 2,591,998 fine ounces, of the coining value of $3,351,270, at which figure it is given in the table of the world's production for 1897. The product for 1898 is estimated to have been the same as that of 1897.

The following table shows the official values of the export of gold and silver from Chile since 1889 in customs pesos:

[Estadistica comercial de la Republica de Chile.]

Year.	Gold ore.	Gold bullion.	Silver ore.	Silver bullion.	Gold and silver ore.
	Pesos.	*Pesos.*	*Pesos.*	*Pesos.*	*Pesos.*
1890	418, 199	532, 145	926, 375	4, 335, 218	275, 554
1891	69, 142	479, 789	174, 289	4, 506, 771	65, 343
1892	19, 010	783, 638	419, 301	5, 017, 390	961
1893	35, 596	602, 761	206, 996	4, 418, 072	9, 225
1894	39. 243	1, 172, 355	401, 449	3, 857, 481	12, 383
1895	54, 063	247, 794	1, 051, 034	3, 867, 412	28, 255
1896	73, 475	849, 036	1, 257, 870	4, 183, 108	130, 182
1897	28, 535	905, 168	434, 231	3, 781, 125	46, 631

Mineral Products of Chile.

The province of Antofagasta extends from 21° 30′ to 26° south latitude, and is composed of the three departments of Tocopilla, Antofagasta, and Taltal. Each of these has its port of the same name, from which almost all the products are shipped, the other ports being minor ones.

ANTOFAGASTA.

This department, which is the principal one, is wonderfully rich in gold, silver, copper, salt, and anhydrite, also in lead. The production of Bolivia is nearly all exported through the port of Antofagasta, as the Antofagasta and Bolivia Railway is the only one that extends into the heart of that country, having a length of some 600 miles. Silver, copper, antimony, bismuth, tin, mercury, and sulphur are received from Bolivia.

Gold.—The gold mines of this department exist in three districts, San Cristobal, Santa Maria, and at the mouth of the River Loa. The gold is found in well-defined fissures, quartz lodes in quartz trachyte, and, with the exception of one mine, the Bolaco, in San Cristobal, very little work has been done, chiefly owing to the lack of water, which has to be taken in carts 36 miles and sold at a price of £1 16s. ($8.74) a ton. The production of gold from San Cristobal has been for the last few years on an average of 200 kilograms (440.92 pounds) fine a year. The percentage has averaged 10 ounces to the ton. The production from Santa Maria and the Loa is small.

Silver.—There are several districts in this department, the most important being Caracoles, Sierra Gorda, El Inca, Paine, Laukir, Atahualpa, Aralar, Sierra de Plomo, Piquios, and Cerro de Pascua. These are distributed all over the department, and, with the exception of Sierra Gorda, heavy freights by carts must be paid to the different stations on the railway. The production of silver, which once reached 250,000 kilograms (551,150 pounds) fine (in 1873) from Carcoles alone, of an average of 1.65 per cent, has been reduced in subsequent years to 25,000 kilograms (55,115 pounds) in the whole department. The percentage now averages 0.3 per cent. The first three districts named are the only ones at work at present. The ores are chiefly chlorides in limestone.

TOCOPILLA.

This department produces gold, very little silver, copper, nitrate of soda, and borate of lime.

Gold.—This does not amount to much, and is all sold in Antofagasta.

TALTAL.

This department produces gold, silver, nitrate of soda, and copper, all in large quantities.

Gold.—The famous mines of "Guanaco" produced, ten or fifteen years ago, enough to keep four large establishments going. Now the production has decreased, owing to the small amount of work carried on. It is calculated that about half a ton of pure gold is still produced. The ores are all milled in the port of Taltal.

Silver.—There are some very rich districts, among which I may mention Cachinal (including the famous Arturo Prat mine), Sierra Esmeralda, Griton, Cifunchos, and Argolla. With the exception of the first named there is very little work done, still the production is not less than 25 tons of bar silver. With more active work this ought to be increased.

CHINA.

The report on mines and quarries of the British Empire places the gold output of China for 1897 at 4,550 kilograms, but this is evidently incorrect, as in that year China exported to Germany alone almost 8,000 kilograms of raw and bar gold, and nearly as much in the preceding year.

China prepares no official figures as to her gold product, and it is probable that the British figures quoted above are based on the gold exports to Great Britain and to India, the figures for the German exports not being available until the present year.

The following table is made up from official reports:

GOLD EXPORTS FROM CHINA AND HONGKONG.

Year.	To Great Britain.[a]	To Germany.[b]	To India.[c]	Total value.
1896	$1,833,013	$5,034,652	$1,190,963	$8,058,628
1897	205,912	6,555,710	1,836,290	8,597,912
1898	17,633	[d] 3,998,000	[e] 2,012,000	6,027,633

[a] United Kingdom, p. 104.
[b] Report to Bureau from Berlin.
[e] Reports from India.
[d] Estimated.
[e] Fiscal year 1898-99.

In 1897 there were exported from China to Japan $235,600 in bullion, and in 1898 $51,100. From this it appears that the exports to Great Britain have been falling off steadily until they have nearly ceased, while those to India and Germany have as steadily increased, the total export not varying greatly since 1895.

The gold product is estimated as equal to the total exports, viz:

1896	$8,058,628
1897	8,833,512
1898	6,078,733

Silver.—The director-general of statistics of British India has informed this Bureau that India imported from China during the fiscal year 1898-99 silver coin and bullion to the weight of 2,764,236 ounces.

The annual statement of the United Kingdom says that 195,000 ounces of silver bullion was exported from China and Hongkong to Great Britain in 1898. No statement of silver exports to Germany is obtainable.

It is obvious that no estimate of silver production can be based on these very limited figures.

TREASURE.

[From Consular Report, April 22, 1899.]

The recorded movements of gold and silver bullion between China and foreign countries show a net export of gold worth 7,703,843 haikwan taels, and a net import of silver of 4,722,025 haikwan taels. Exchange in China having fallen below the value of silver, it was found profitable to send 3,065,275 haikwan taels to India.

THE GOLD MINES OF MANCHURIA.

[From the Economiste Europeen, October 22, 1897, p. 131.]

From time immemorial the Chinese Government had prohibited the mining of gold by private individuals in Manchuria territory, which, according to all travelers who have visited the country, is very rich in minerals. The Chinese Government, indeed, reserved to itself from the very beginning the benefit of all discoveries of gold that might be made within the limits of the Celestial Empire; but with the more or less officious complicity of the mandarins, who are very clever in the art of closing their eyes to the efforts of the largest bribers, the working of the gold mines has been carried on none the less for a very long time in Manchuria by clandestine washers, who acted at first very isolatedly, but have since combined into powerful syndicates. We have, indeed, no very precise information as to the nature of the gold beds, except as to the auriferous deposits of the Jettonga, one of the affluents of the Amoor, on whose banks a species of a republic of gold washers was established in 1884, but which was dispersed by Chinese troops at the end of 1886, after they had extracted a clandestine harvest of more than 8,000 kilograms of gold.

The majority of accounts given by travelers agree in their testimony as to the really exceptional contents of many of the alluvians washed by the marauders. Notwithstanding its very defective treatment, the gold which they extracted enabled them to richly reward the workmen and to pay them for the risks they always ran in violating a law whose sole sanction was, until a few years ago, the death penalty.

In 1888 the Chinese Government, recognizing, doubtless, its powerlessness to prevent such colossal frauds, decided to tolerate the exploitation of gold. The working of the gold mines was therefore undertaken with the special authorization of the Chinese Government, especially by the Chinese Company, at the head of which was the celebrated Li Hung Chang. It still continues to operate profitably the works of the Mokhé mine.

Side by side with these companies with large capital "free communities" were formed among the rural population for the working of the auriferous sands of these districts. Their labor, which was very remunerative although very rudimentary, bears evidence to the wealth of the region. It is a matter of curious interest to observe how these free communities operate, and Mr. H. Hinstin has furnished us with interesting details thereon.

The free community of Tsia-pi-goou is the oldest. It is also the strongest, the most numerous, and the best organized. Unable to dissolve it by force, the Chinese authorities of Ghirine had negotiated with it and were satisfied, even before 1888, with receiving the generous presents sent to them by its permanent representative at the seat of government of Ghirine. The head of the "community" received all the gold gathered and distributed it among the various gangs of workmen. He provided for the wants of the workmen whose labor was unproductive, administered justice, and punished the guilty with a bastonade. He had even the right to inflict the death penalty, provided he shed no blood. The condemned man was, therefore, either buried alive or thrust through a hole in the ice into the river.

The free community of the miners of the Jeltonga, from the name of the river mentioned above, is composed equally of distinct gangs, each of which has elected a head or chief. These chiefs appoint a first syndic, intrusted with the duties of putting in force a regulation or constitution, based on the three following principles: The organization of the workmen into gangs; the election of chiefs; severe penalties for violations of law. The bastonade, the knout, and hanging constitute the penalty of all crimes and misdemeanors. This community has thus far continually developed and increased its production of gold. It has established itself on the two banks of the stream and works an area of from 12 to 15 kilometers in length by 40 to 200 meters in width. The auriferous sands form here a bed of 1½ to 2 meters in thickness. They are covered over with sterile compounds from the surface downward, of humus and gravel, measuring from a meter to 1¾ meters in thickness, and by a bed of argillaceous sand from 2 meters to 7 meters in thickness.

Shafts are dug by means of which, after the sterile part has been traversed, the auriferous sands are reached, when gallies are pierced across the sands. The rich sands are transported in wheelbarrows up to a species of trough into which water enters at the bottom, cleansing or washing the sands. The gold is deposited at the bottom of the trough and the muddy earth is carried away.

This coarse mode of washing and separation, which allows a large proportion of the gold to be carried away with the slimes, secures large profits to the members of the "community" by reason of the great richness of the sands. No trouble is taken to wash the sands which do not yield at least 21 grams (324.072 grains) of gold to the cubic meter. At the beginning of working the mines it frequently happens that a cubic meter of sand yields from 410 to 615 grams of gold, or 633 to 9,491 grains, and sometimes nuggets of considerable size and fineness are found.

After Russia had, as a result of the last war, established its influence as preponderant in these regions, things there changed aspect, and these immense occidental regions may before long become the theater of an intense, irregular, auriferous exploitation under the ægis of the Russian Government.

It is well known that the treaty of the 27th of August (September 8), 1896, granted to Russia the right to construct a railway across the northern provinces of Manchuria and authorized it to establish along that route posts at any point it might find advantageous.

By virtue of the rights granted it by this treaty Russia has undertaken the construction of the "East China via Manchuria" railway, shortening the Siberian line, which is to end at Vladivostok, and even refusing to use as a trunk line the 719 versts (756 kilometers, or 469.7557 miles) of the Siberian lines which it has already constructed from Vladivostok to Khabarovsk. The rapid development of the country will inevitably result in its being put in direct connection with Siberia and Russia on the one hand and with the open maritime port of Port Arthur or Chemulpo, on the Pacific Ocean, on the other.

To bring that great enterprise to a happy termination, the Russo-Chinese bank established last year a branch—The Company of the Railways of Eastern China—the charter for which was approved December 4-6, 1896. According to its charter, this company has received a grant for the exploitation of the Manchuria line during 80 years, beginning with the date of its complete opening. It has the right "to work mines and to engage in any mining and industrial or commercial enterprise." Its shareholders must be Russian or Chinese subjects. Its capital is fixed at 5,000,000 rubles, divided into 1,000 shares. It may issue bonds according to its needs, with the authorization of the Russian Minister of Finances. The Russian Government guarantees its payment of interest. The company contracts to commence work at a fixed date, August 16-28, 1897, and to deliver the road for operation after a period of six years. The plans are already well advanced. It possesses at present all the necessary data for two tracks, with their common starting point at Onone, on the trans-Balkan trunk line of the Trans-Siberian Railway, and a terminus at Nikolskoe, on the line already constructed from Vladostok to Kabarovsk. The length of the two tracks differs but little. It is about 2,000 kilometers, and it has been estimated the cost of building the road will amount to 50,000 rubles per verst. These two tracks, indicated on the map published by Mr. de Batz, cross the chain of the great Gkingan at different altitudes. The northern track runs through explored regions, closely following the postal route. The southern track does not afford the same advantage, but it approaches nearer to Ghirine, where the terminus of the railway to be constructed from Pekin via Moukden is located. It is probable that the southern road will be preferred, especially in view of the fact that it may be more easily connected with the line which will place Pekin on a branch of the trans-Siberian.

One of the first and most important consequences of the construction of the East Chinese Railway will certainly be the exploitation of the mines of Manchuria. These mines will profit by a new mining régime, dictated to the Chinese Government by Russian influence, which now authorizes the working of the gold mines in Manchuria, fixes the conditions of the purchase of the mines, of the dues to be paid the third parties, and of the share of the State in the mining products.

The gold mines are distributed into three principal groups. Those of the zone bounded by the Russian frontier, those of the basin of the Zoungarie, of the mountains of Tchan-bo-chan, and of the peninsular of Liao-tong.

It has been already announced that a syndicate formed in the capital of Manchuria (Moukden) has just obtained the official approbation of the Taong-Li-Yamen for a complete and well-matured plan for development of the natural resources of the province, in the first rank of which is its mineral wealth. On the other hand, at Tacoma, which the Trans-Siberian Railway will soon cross, the natural resources of the country are being actively developed. Since the war thousands of Chinese have taken possession of the parts pointed out as the most productive, especially in the southern and central parts of the three districts which the province comprises.

Korea, which is a neighbor of Manchuria, is also, it appears, rich in gold, but there is no information with respect to that country, while the Russian Government has been able to gather very interesting data relating to the auriferous wealth of Manchuria. The English have not deceived themselves as to the importance of the clause which virtually annexes to Russia a very rich portion of northern China, and which at the present time increases to a great extent its influences in the extreme East. It will, however, be necessary to have recourse to foreign capital and to scientific experts from foreign countries in order to undertake profitably the important gold exploitations of which we have spoken above.

COLOMBIA.

The director of the central office of statistics of Colombia states the total production of the country from 1753 to the end of 1887 as follows: Gold, $165,854,835; silver, $17,691,978.

In 1893 the United States minister to Colombia made an estimate of the production, which has been accepted ever since, but which, with the heavy increase of silver production, has become manifestly incorrect. In default of a better method, the production can only be estimated as equal to the bullion and ore exports. It seems impossible to secure direct official figures of these from Colombia, but it may be assumed that most of the precious metals exported from that country come to Great Britain or to the United States. Following are the returns:

COLOMBIAN GOLD EXPORTS.

	1896.	1897.	1898.
Into Great Britain	$1,721,628	$1,827,156	$1,959,705
Into the United States	344,145	265,727	169,210
Into Germany, France, and Spain	*a* 134,300	134,300	*a* 134,300
Total	2,200,073	2,227,183	2,263,215
Corresponding to kilograms	3,310	3,351	3,405

a 1897 figures repeated.

COLOMBIAN SILVER EXPORTS.

[Commercial value.]

	1896.	1897.	1898.
Into Great Britain (bullion)	$1,831,978	$2,523,535	$2,811,248
Into Great Britain (ore)	441,513	495,561	421,765
Into the United States	22,830	9,301	2,380
Total	2,296,321	3,028,397	3,235,393
United States coining values	4,405,015	6,525,838	7,090,058
Corresponding to kilograms	105,991	157,022	170,598
Corresponding to ounces fine	3,407,004	5,047,328	5,483,717

MINING IN COLOMBIA.

[William E. Curtis, in Chicago Record.]

If the reports of the Spanish officials and the records of the church in colonial times can be relied upon, the Republic of Colombia has produced more gold than any other country on earth—more than California, Nevada, Australia, or South Africa. The total from 1537 to 1875 piles up to $818,454,900. This is from the records of the tax and tithe gatherers, who in colonial times were authorized to collect one-fifth of all the output of the mines for the Church and one-fifth for the King, but there is no telling how much treasure escaped the vigilance of the priests and the administradores, for people were probably as reluctant to pay customs dues and pew rents in those days as now. Recent reports bring the total to $868,207,914, including the year 1897. The output of the gold mines in the earlier part of the eighteenth century, nearly 200 years ago, was larger than it is to-day, and averaged $3,325,000 a year.

Up to 1875 the total product of silver in Colombia was valued at about $82,000,000. Since then the annual average has been about $1,200,000, bringing the total to about $108,000,000 in 1897, and making a total of $976,000,000 for both gold and silver from the time of the discovery to the present date. This does not include the vast quantity of gold and silver that was found in the hands of the natives and shipped to Spain by the conquistadores.

The gold coinage of Colombia since the mints were founded in 1753 has amounted to $187,000,000, and the silver to $26,000,000.

The most of the gold has come from placer deposits in the Cauca Valley, which runs between the two ranges of the Andes, extends nearly the entire length of the country parallel with the Pacific coast line, and whose seaport is Buenaventura. It is probable, therefore, that the Cauca Valley has been the source of more gold than any other place on the earth's surface, and the deposits that remain are quite as rich as any that have been exhausted.

The Cauca River is the second river in length and volume in the Republic. It rises near the boundary of Ecuador and flows northward through a fertile region, varying from 4,000 to 7,000 feet altitude, where agricultural products might be a source of wealth equal to that of the mines if the soil were cultivated with intelligence and industry.

In the upper part of its course, in the mountains of the Central Cordillera, the Cauca flows through a volcanic region, and its waters are so impregnated with sulphuric and other acids that they are poisonous and destructive of fish. These acids are mainly contributed by the Rio Vinagre, or Vinegar River, which rises from an acid spring in the Volcano Purace, and from the peculiarity of its waters receives this name.

The earliest mining in the Cauca Valley was done under the direction of the Jesuits and the Franciscan friars, who were the most enterprising and practical of all the newcomers to the new world; and, although modern machinery has been extensively introduced into the mines of Antioquia, along the Cauca River and its tributaries, the most antiquated and primitive processes are still used, and scarcely a beginning has been made in the development of their resources. The greater part of the gold that has been taken has come from small creeks, banks of clay that have been formed by overflows, river bars that are exposed at low water, and recent alluvial deposits adjacent to the small streams. The method of work is as crude and as wasteful now as it was two centuries ago, the "batea," the "almocafre," and the "barra," native tools made of wood, being used almost exclusively.

Along the San Juan and the Atrato rivers and their tributaries are miles of auriferous gravels that will pay from 10 to 30 cents in gold a yard, and water to work them can be obtained in any quantity, with all the head that is necessary. An experienced miner from Colorado or California would make short work of them. Some years ago a German-American from Arizona named Stein spent a few months on the Andagueda River and took out $50,000 in gold from gravel that averaged 19 cents to the cubic yard.

Robert B. White, an engineer who has made extensive explorations, reports that he found an ounce of gold to the ton of sand. "From what I observed," he says, "and from what I saw of the work of the natives, I should say that the beds that rest upon the rock would produce by careful washing 10 ounces of gold to the square yard, and at some points will yield 50 ounces. I do not know of any rivers in any country outside of Colombia where such favorable conditions exist." But even the Cauca Valley has its drawbacks, for down on the streams where the gold is the most plentiful the climate is deadly and labor is vary scarce.

The women do all the mining. No man with any self-respect can be induced to engage in that occupation, because in Spanish times it was the work of slaves. No freemen were allowed to touch a pick or a miner's basin, because the working of the mines were monopolies granted by the Crown, and private individuals were not allowed to compete or interfere. The concessionaires employed slaves to do the labor, and gold washing and slavery became synonymous. Therefore the proud natives, who are half-breeds of Spanish and Indian blood, leave that sort of work for their women, while they hunt and fish and sit around smoking tobacco and watching their wives and daughters wash out the gold. In some places where the streams are deep the methods are novel. Well-formed, saddle-colored girls, wearing nothing but breechclouts, dive from the banks into 12 or 15 feet of water and each brings up two handfuls of sand. They wash their fingers in a gourd and dive again until the gourd is filled with sparkling particles. Then they separate the gold from the sand and carry the dust to their liege lords who have been calmly watching the operation. They usually make from $2 to $4 a day, but the work is irregular and depends upon the conditions of streams. During the rainy season this method of mining is entirely abandoned. The merchants at Quidbo usually send up to Cartagena by every steamboat from 15 to 20 pounds of gold dust.

EAST INDIES.

DUTCH.

BORNEO.

This island is partly Dutch and partly British. The gold product of Borneo for 1896, according to the official figures received at this Bureau, was 1,784$\frac{11}{16}$ thaels (a thael is equal to 56 grams), of which the marketable value varies between 66.6 florins and 79 florins ($26.77 and $31.75) per thael. Calculated at the lowest value this would give a product of $47,782, or 72 kilograms, fine.

Minister Newel, at The Hague, reports that the product of the Dutch East Indies for 1897 was 98,307 kilograms, valued at 118,332.50 florins

($47,570). This, however, is the figure for Dutch Borneo alone. The Statistique de l'Industrie Minerale puts the 1897 gold product of all the Dutch East Indies at 175 kilograms, valued at 603,000 francs; this corresponds to $116,379.

CELEBES.

Mines and Quarries says that gold is known to occur in various parts of it, and that several companies have been formed in Amsterdam to exploit the deposits.

Mining law of the Dutch East Indies.—Under date of June 1, 1899, Minister Newel sends from The Hague translation of an article in a law relating to mining operations in the Dutch East Indies, which has recently received royal sanction. The article prohibits the carrying on of mining operations except by citizens of the Netherlands, persons domiciled in the Netherlands or the Dutch East Indies, or companies of which the majority of the managers satisfy one of the preceding requirements.

BRITISH.

NEW GUINEA.

The gold product of British New Guinea for 1897, according to information received from the foreign office in Great Britain, was 221 kilograms, valued at £26,250, or $127,746.

MALAY STATES.

From the same source the product of gold of the Malay States for 1897 was 856 kilograms, valued at $1,018,193. This is presumed to be Mexican dollar value, and the average value of the Mexican dollar in London for the year 1897, according to the British Mint Report, was 27$\frac{1}{16}$ pence, equivalent to $0.5487, which would give the value in United States money of $558,682, representing 840.6 kilograms, fine.

For 1898 the British foreign office reports that 809 kilograms of gold, valued at $996.991, were produced. The average value of the Mexican dollar in London for 1898 was 26$\frac{3}{8}$ pence, equivalent to $0.5348, giving the value in United States money of $533,191, representing 802.2 kilograms, fine.

Mines and Quarries says: "Various parts of British North Borneo are auriferous, and gold is obtained partly from quartz veins and partly from alluvia. It is proposed to work some of the gravel beds by dredges."

AMERICAN.

PHILIPPINE ISLANDS.

The disturbed condition of affairs in the Philippines has prevented gold mining for several years. The islands are known to be rich both in reef and alluvial gold, and their output will probably be large in the near future. Spain imported $55,000 worth from there in 1896, besides large amounts sent to Hongkong.

NATIVE METALLURGY IN THE PHILIPPINES.

[From the Engineering and Mining Journal, New York, June 17, 1899, p. 709, by R. L. Packard.]

The geology and mineralogy of the Philippines has been studied by French and German travelers besides Spaniards. An excellent summary of the geology, especially the petrography, of Luzon, Samar, and Leyte, by the well-known German geologist, J. Roth, is given in Jagor's Reisen in den Philippinen, 1873. There are other later works. Jagor's book contains an interesting account of gold mining and copper smelting in Luzon, the latter art having been practiced for centuries—long before the islands were discovered by Europeans—by Ygorrotes, one of the wild tribes of the island. The civilized and Christianized natives—the Tagals, Visayas, and some others—are farmers, and not miners. The gold district visited by Jagor is in the extreme eastern part of Luzon, in Camarines Norte. He remarks that the localities called Paracoli and Mambulao, in that district, are places well known to mineralogists on account of the occurrence there of lead chromate. Those places are on the coast. The rocks of the district, according to Roth, are gneiss and hornblende schists, the latter running into serpentine and tolcose schists, in which particularly the gold-bearing quartz veins occur, carrying iron pyrites, chalcopyrite, and galena and their weathered products, in which the gold occurs dendritically. Where the workings occur the ground consists of a coarse gravel of decomposed crystalline rock full of fragments of quartz, in which material the miners sink narrow pits to the depth of 30 feet. At about 3 feet below the surface the ground begins to carry gold and increases in richness to about 18 feet in depth, after which the value decreases; but as there is no uniformity in this rule, many unsuccessful mines are started. The workings are abandoned during the rainy season because the pits, which are on a hillside, fill with water faster than they can be unwatered by buckets.

The gold-bearing rock is crushed by means of a spring pole and rude stone mortar. The pole rests in an upright fork, one end being fast in the ground, while a 25-pound rock is fastened to the other by rattan and acts as a pestle, which the operator makes play up and down upon the pieces of ore placed upon a slightly hollowed flat stone, which is the mortar.

The grinding is done in an arrastre, rudely constructed of roughly shaped stones, which form its bottom and sides. In the center of the circular bottom is fixed a stout post with an iron pin in its upper end, around which pivot a horizontal beam is made to turn by two buffaloes, which are harnessed to its ends. This beam drags around several heavy stones, which are fastened to it by rattans, and they grind the crushed ore, mixed with water, to a fine pulp. The resemblance between this apparatus and the Mexican arrastre now used all over the mining districts of the West is very noticeable. As there was a constant intercourse between Manila and Acapulco in the seventeenth and eighteenth centuries, it would be curious to know whether the American arrastre may not owe its origin to the Philippines.

The pulp is washed by women, who kneel along one side of a wooden trough kept filled with water, on the other side of which, and opposite each woman, downwardly inclined boards are fixed, their upper ends being let into the edge of the trough so that the water will run over them; and they are also tipped obliquely, their lower sides having riffles to hold the heavy sediment. The women throw the pulp upon these boards and the water washes away the lighter sand, leaving a dark residue of sulphides, which is removed from time to time with a flat chip, laid aside, and at the close of the day's work is washed in a flat wooden spoon (batea) and then in a cocoanut shell, when, in case gold is present, it is found as a yellow powder at the edge of the ore. During the last washing the mucilaginous sap of a climbing mimosa is added to the shell, which keeps the fine, heavy sand in suspension, so that it is more easily separated from the gold. The fine gravel and the pieces of rock destined for crushing are washed in the trough itself in order to save the gold in the sand adhering to the latter. The gold dust is then placed in the shell of a bivalve, together with some charcoal, which is ignited and kept burning by the woman operator, who uses a bamboo tube as a blowpipe. In a few minutes the gold melts to a button, which is sent to market. One of these buttons was found to contain 77.4 per cent gold and 19 per cent silver. The daily pay of one of these pits is very small.

* * * * * * *

GOLD IN THE PHILIPPINES.

[Raymon Reyes Lala in the Review of Reviews.]

Up to the present time most of the gold has been found in the easily accessible districts near the coasts, though the natives of the interior of Luzon, a region but little explored, traffic in the precious metal, which they evidently obtain from some of the inland streams. As yet placer deposits are the chief source of the metal, which has been worn by the rains from the mountain ranges and borne down by rivulets and creeks to their lower channels. In certain regions there is not a stream, large or small, whose sands do not show the yellow trace of gold, while now and then natives of the interior offer heavy nuggets for sale. The gold thus buried in the river sands and gravels undoubtedly had its source in the mountain ranges, whose quartz veins await the hand and eye of the cunning miner. They may be rich; they may be poor; only scientific study and exploration can tell.

The principal gold-yielding region of Luzon is the district of Mambulao. The metal has been found also in Mindanao, Mindoro, Panay, Cebu, and the smaller islands of Samar, Catanduanes, Sibuyan, Bohol, and Panaon. One of the larger islands, Mindoro, gains its name from its gold deposits, it signifying "mina de ora" (gold mine). The natives speak of places in its interior which are rich in gold. The same is the case with the interior of the large island of Mindanao, where gold is so plentiful that the natives carry it about in bags for use in their ordinary buying and selling. Here are the Misamis placers, the richest in the archipelago, their yield to the native miners being about 150 ounces a month. Rich quartz veins are said to be known in this island, and there is one such vein in the small island of Panaon, lying north of Mindanao; but hitherto gold has been mined principally in placer beds, and these not very rich as compared with those of California. Personally I know very little about these gold gravels, as I have seen only some of their results. They are so widely distributed and are worked in so desultory a manner that their actual richness is largely a matter of guesswork. As regards the mother veins, I have made no search for them, and I am quite sure that the Spaniards have not troubled themselves in this direction. They rest in virgin wealth, waiting in their pristine state the coming of the American mining prospector. They will have to be deeply hidden indeed if they escape his penetrating eyes.

In truth, at present only the edges of the gold districts have, as a rule, been worked. The absence of roads has proved an obstacle to the exploration of the interior insuperable to the easy-going Spaniard. The natives make their way through the dense forests, cutting a path as they go, but these are tracks suited only to the naked foot of the savage forester. Mining outfits and machinery require roads of a different kind. Bridges will need to be built, highways constructed, and railroads laid before these islands can be properly exploited, and all this means time, capital, energy, and enterprise. So, doubtless, for a number of years to come the gold must await its master.

Shall I say something now about how the native mining is done? The Filipino uses two tools only—a wooden bowl and a washing board. These are of great antiquity, and form part of the household furniture of every dwelling in the mining districts. In gold getting they are rude and wasteful in the highest degree. All the float gold is lost and only rich deposits can be worked with any profit. The process of amalgamation, indispensable in American mining, is quite unknown in the Philippines. Only that the streams are often rich in gold, such mining as this would yield no returns. But so abundant is the precious metal in some localities that after heavy rains grains of it may be picked up in village streets.

I do not wish to convey the idea that the natives are quite ignorant of the process of quartz mining. They do work some of the richer veins in a crude fashion, breaking the rocks with hammers, or grinding them under heavy stone rollers turned by buffaloes. The crushed rock is then washed in their usual primitive manner. They lack explosives and no blasting is done. They possess no quicksilver and know nothing of the art of amalgamation. The idea of pumping out the shafts has not penetrated their minds, and the water is bailed out with small buckets made of palm leaf and holding about 2 gallons. These are passed by lines of workmen from hand to hand. This, the time-honored method, is quite satisfactory to them, though it would be intolerably tedious to a miner of Anglo-Saxon blood. And even this crude method of working is not pursued with systematic diligence. The Filipino has no fancy for steady labor. He works in the mines in the intervals of his labor in the fields, when he happens to need a few dollars to gamble away in the cockpit. As for laying up treasure for the future, the idea is unknown to him. There lies the gold; there it has always been and always will be. Why need he trouble himself to gather more than the hour calls for? He can always turn his hands to it when other resources fall. Yet even with this indolent and wasteful way of working thousands of ounces of the precious metal have been gained.

ECUADOR.

No figures have been received as to the gold and silver production of the country. In 1898 gold dust was exported to the value of 92,571 sucres. This corresponds to $39,509, or 59 kilograms, fine, at which figure its product is estimated. (The value of the sucre at the average price of silver for the year 1898 was $0.4268.)

FRANCE.

France produces no gold. The silver product in 1897 is stated by Ambassador Porter, under date of May 29, 1899, to have been 16,890 kilograms, fine, of the value of 1,723,000 francs. This corresponds to $332,539 commercial value, or to $701,948 United States coining value.

GERMANY.

The gold and silver production of Germany in 1898, according to answers received to this Bureau's interrogatories, was as follows:

Gold obtained from refineries, 2,846.97 kilograms, valued at 7,913,410 marks.

Obtained from—	Kilograms.
Domestic ores	110. 78
Foreign ores	837. 35
Domestic and foreign sweepings and refuse	1, 898. 84
Total	2, 846. 97

Silver produced by refineries, 480,578.30 kilograms, worth at the works 38,156,646 marks, which was obtained from the sources named below.

	Kilograms.
Domestic ores	173, 329. 54
Foreign ores	276, 522
Domestic and foreign sweepings and refuse	30, 726. 76
Total	480, 578. 30

As will be seen from the above, the actual yield of gold from the German mines in 1898 was comparatively insignificant, having been only 110.78 kilograms, corresponding to $73,624. The amount of gold derived from foreign ores, imported and smelted and refined at the various German refineries, was 837.35 kilograms, and this, having been credited to the countries where the mines were situated, duly appears in the statement of the world's annual production of gold. The third item, 1,898.84 kilograms, yielded by the refineries and obtained from domestic and foreign by-products, sweepings, and refuse, may have, in part, been obtained from domestic auriferous silver ores, but it is impossible to state just what portion was so obtained; and as the largest part of the gold included under this head doubtless was derived from by-products, refuse, and sweepings obtained from various industrial establishments no notice is taken of it in the estimate for the year.

The amount of silver produced by the refineries in Germany for 1898 may be placed at 480,578.30 kilograms pure, worth at the works 38,156,646 marks. Of this amount only 173,329.54 kilograms were obtained from domestic ores, and are consequently rightly to be credited to Germany. That portion obtained from foreign ores has, in the proper place, been included in the estimates of the various countries which produced it. For the reason above stated the third item, 30,726.76 kilograms, obtained from domestic and foreign by-products, sweepings, and refuse, has been disregarded in the estimate of the world's annual production.

The coining value of Germany's production in 1898 was $7,203,576.

GREAT BRITAIN.

The official figures of the production of the precious metals during 1898 are given by the British foreign office as follows:

Description.	Weight.	Value.
	Kilograms.	
Fine gold	10	£1. 372
Fine silver	6, 575	25, 652

The value of the gold was $6,646 and the silver $273,257 (United States coining value).

GREECE.

Greece has no gold mines. Minister Rockhill writes, under date of March 8, 1899, that the silver mines produce annually from 5,000 to 6,000 tons of silver-lead, which sells for about 500 francs a ton. This would make its annual yield about $579,000, commercial value. Accordingly the product for 1898 would be 981,356 ounces, or 30,530 kilograms fine, of the coining value of $1,268,824. In 1897, however, it yielded 37,431 kilograms fine, according to the Statistique de l'Industrie Minerale for 1897, with a United States coining value of $1,555,632.

THE GUIANAS.

The following table, showing the product of the Guianas in 1898, was compiled from the official reports that follow it:

Where produced.	Weight.	Value.
	Kilograms.	
British Guiana	3,082.50	$2,048,675
Dutch Guiana	856.35	569,130
French Guiana	2,474.25	1,644,388
Total	6,413.10	4,262,193

No silver is produced in any of the Guianas.

BRITISH GUIANA.

The following figures are taken from the report of the Institute of Mines and Forests for 1898:

GOLD PRODUCED IN 1898 (JULY 1, 1897, TO JUNE 30, 1898).

Source.	Weight.
	Ounces.
Barima	17,359
Barama	6,151
Cuyuni	25,212
Groete Creek	1,307
Wuruni	7,563
Mazaruni	3,552
Essequebo	23,361
Potaro	33,038
Demerara River	72
Total	117,615

The product in 1897 (fiscal year) was 127,479 ounces, showing a decrease of 9,864 for the colony. This was practically all in the Barima fields, which dropped from 30,148 to 17,359 ounces, the other fields, for the most part, showing small increases.

The report of the Institute ascribes this to exceptional weather, which has retarded work. The most promising field is that of Potaro, whose increase has been steady since 1892.

Nearly all the British Guiana gold comes from alluvial washings, quartz mining being nearly at a standstill.

A later report from the United States consul says that "the above figures refer to the fiscal year 1897–98." For the calendar year 1898 the total product of the country is said to be 113,500 ounces, valued at $1,986,250.

Our consul adds that "In this colony the banks purchase it of the mines at $17.50 per ounce. Its value, as determined in England, is $18.05 per ounce."

The actual value of these 113,500 ounces produced, at $18.05 per ounce, would be $2,048,675, representing 99,105 ounces, or 3,082.5 kilograms, fine.

The production for the calendar year 1897 is given by our ambassador at London as 3,818 kilograms, valued at $2,086,727, representing 3,139.8 kilograms, or 100,945 ounces, fine.

DUTCH GUIANA.

The United States consular agent at Paramaribo writes under date of April 25, 1899, that the total gold produced in 1898 was 865 kilograms, valued at 1,185,036 florins. At 0.990 fine this corresponds to 856.35 kilograms, valued at $569,130. The United States minister at The Hague reports that the product for 1897 was 915.124 kilograms, valued at 1,256,660 florins, or 905.97 kilograms fine, at a value of $602,108.

The last annual report of the central commission of statistics of the Netherlands prints the following table of the gold product and exports:

GOLD PRODUCED.

Date.	Declared weight.	Exports.
	Kilograms.	*Kilograms.*
1887	859	1,007
1888	580	1,030
1889	645	894
1890	814	952
1891	1,237	821
1892	810	1,079
1893	867	1,160
1894	777	1,182
1895	748	954
1896	846	875
1897	903	....

In every year except 1891 the exports were larger than the amounts given for production, showing that the figures for production have not been fully collected.

FRENCH GUIANA.

The United States consul at Demerara, British Guiana, reports that the total product of the French colony for 1898 was 2,474.252 kilograms, but he does not state the fineness nor the value. In the absence of this information it is assumed to have been pure, the value of which would be $1,644,388.

The official figures for 1897, reported by Mr. Horace Porter, United States ambassador to France, was 2,311 kilograms, valued at 7,960,000 francs, or $1,535,891.

ITALY.

The gold production of Italy in 1898 is officially stated to have been 250.1 kilograms, with a value of 859,737 lire, and the silver product to have been 25,568 kilograms, with a value of 2,459,389 lire.

These values correspond, for the gold, to $165,929, representing 249.66 kilograms, or 8,027 ounces, fine; for the silver, to a commercial value of $474,662 and a coining value (United States) of $1,040,177, representing 25,028 kilograms, or 804,512 ounces, fine.

JAPAN.

The gold and silver product of Japan for the three years, 1896, 1897, and 1898, is officially stated as follows:

GOLD.

Years.	Quantity.	Value.	United States coining value.
	Kilograms.	*Yen.*	
1896, fine weight	961. 946	*a* 1, 062, 107. 146	$639, 309
1897, fine weight	1, 043. 707	*b* 1, 010, 360. 561	693, 648
1898, fine weight *c*	1, 189. 825	*b* 1, 151, 810. 091	790, 758
SILVER.			
1896, fine weight	64, 337. 489	*a* 2, 544, 829. 042	$2, 673, 866
1897, fine weight	52, 445. 697	*b* 2, 078, 422. 972	2, 179, 643
1898, fine weight *c*	51, 638. 033	*b* 2, 046, 415. 247	2, 146, 077

a Value sold for. *b* Value sold for, approximately. *c* Approximate.

The Résumé Statistique du Japon for 1898 prints the following tables (pp. 28, 29):

Years.	Gold.	Silver.	Years.	Gold.	Silver.
GOVERNMENT MINES.	*Ounces.*	*Ounces.*	PRIVATE MINES.	*Ounces.*	*Ounces.*
1890-91	8, 375	225, 897	1890	15, 257	1, 477, 981
1891-92	7, 000	192, 265	1891	15, 548	1, 697, 745
1892-93	8, 802	275, 986	1892	12, 738	1, 640, 563
1893-94	9, 842	335, 108	1893	14, 308	1, 894, 798
1894-95	10, 906	322, 092	1894	14, 647	2, 016, 137
1895-96	10, 979	273, 451	1895	18, 122	2, 053, 248

FORMOSA.

[From L'Economiste Européen, July 21, 1898.]

The Financial News states that rich deposits of gold have been found in Formosa, and are being assiduously worked by the Japanese, who are doing their best to prevent foreigners learning of the golden treasures that exist in the island. They have already installed, with considerable mystery, a number of batteries, which are in operation at this moment, and which are to be increased. The results so far are encouraging.

These deposits are in the northwestern part of the island, and those who are working them have only one fear, that of seeing new miners to share their good luck arrive. The Japan Herald says that these discoveries are of public interest, but it remains to be seen how the Government will treat foreign prospectors. Will it grant them permission to file claims; will it impose a tax on the gold produced, or will it forbid—this is not wholly impossible—foreign miners to exploit the auriferous deposits of the country altogether?

The Japanese are freely allowed to mine gold in Australia, in Canada, etc., but it is far from certain that equal privileges will be accorded foreigners in Formosa.

KOREA.

Korea's gold output for 1897 is placed by the Statistique de l'Industrie Minerale at 1,535 kilograms, fine, valued at 5,287,000 francs, corresponding to $1,020,161.

This is considerably larger than this Bureau's estimate for 1897, which is repeated for 1898.

MEXICO.

Owing to the fact that Mexico exports a large proportion of her gold and silver in various stages of crudeness, instead of refining them within her own borders, it is difficult to ascertain the value of her production.

The method employed by this Bureau in 1895, 1896, and 1897, in estimating the gold product of Mexico, gave to that country a much larger product than the method formerly employed would have shown.

This departure from the old method of calculation was brought about by the fact that the United States alone received yearly from Mexico an amount nearly equal to the declared value of the total gold exports of that country. It was also believed that a very considerable amount of gold in bullion and ore was exported to Great Britain, Germany, and France. Upon this assumption, it was thought conservative to estimate the exports from Mexico to those countries at an amount equal to one-third of the amount derived in the United States from Mexican gold imports.

Within the present year Great Britain has, for the first time, in her official publications separated the gold imports from Mexico from those of the South American countries and the West Indies.

An examination of these statistics and the official publications of Germany and France for the years 1896 and 1897 show that the amounts of gold imported from Mexico during the years were very insignificant, and consequently we were in error by assuming that Mexico exported gold to those countries in amount equal to one-third of the amount exported to the United States. On the contrary, it is shown that nearly all the gold exported from Mexico comes to the United States, and a corrected estimate of the gold product of Mexico for the years 1896 and 1897 is given below:

PRODUCT FOR 1896.

Items.	Coining value.	
	Gold.	Silver.
Exports	$5,746,723	$37,101,624
Coinage	565,985	21,092,397
Total	6,312,708	58,194,021

The silver represents 1,422,315 kilograms fine, at the Mexican coining rate for silver of 40.915 pesos per kilogram, a United States coining value of $59,111,411, representing 45,718,982 ounces fine.

PRODUCT FOR 1897.

Items.	Coining value.	
	Gold.	Silver.
Exports	$6,846,893	$49,002,928
Coinage	417,176	19,608,459
Total	7,264,069	68,611,387

The silver represents 1,676,925 kilograms fine, at the Mexican coining rate for silver of 40.915 pesos per kilogram, a United States coining value of $69,693,000, representing 53,903,180 ounces fine.

The value of the gold extracted from Mexican ores and bullion at private smelting works and refineries, and the value of bullion deposited at United States mints from Mexico in 1896, was $5,828,775, and in 1897 $6,764,361.

The product for 1896 may be estimated in round numbers at $6,500,000, and in 1897 at $7,500,000.

It will be noticed that, according to the private refinery and mint returns in 1896, the United States apparently received $82,000 worth of gold in excess of the Mexican declared value of exportations. This can be explained in several ways: First, the undervaluation of the Mexican exports; second, a possible error of so small an amount in the private refinery returns of their foreign material worked; third, the refining and putting on the market a finished product which was produced and imported in a previous year.

In estimating the product of Mexico for 1898, the original method adopted by this Bureau previous to 1895, and which at the present time seems the most accurate, has been followed, and the results obtained are given below:

EXPORT OF GOLD AND SILVER FROM MEXICO DURING THE CALENDAR YEAR 1898.

[From Estadistica Fiscal, Mexico, 1898.]

Description.	1898.	Description.	1898.
Gold:	*Pesos.*	Silver:	*Pesos.*
Gold ore	1,037,202	Silver ore	11,048,358
Foreign gold coin	144,106	Foreign silver coin	702,034
Mexican gold coin	223,598	Mexican silver coin	15,886,755
Gold bullion	6,493,708	Silver in foundry slag	46,488
Gold cyanides	294,730	Silver bullion	37,137,599
Gold sulphides	64,061	Silver cyanides	257,342
		Silver sulphides	1,663,501
Total	8,257,405	Total	66,742,077

By eliminating the items "domestic" and "foreign" coins from the above table and adding the coinage of the year, we have the following totals:

Items.	Coining value.	
	Gold.	Silver.
Exports	$7,889,701	$50,153,288
Coinage	599,442	22,066,445
Total	8,489,143	72,219,733

As Mexico retains some bullion at home and employs some in the industrial arts, we may safely estimate the gold product for 1898 at $8,500,000. The silver represents 1,765,116 kilograms fine at the Mexican coining rate for silver of 40.915 pesos per kilogram, a United States coining value of $73.358,221, representing 56,738,000 ounces fine.

The following values were obtained from ore, bullion, etc., imported into the United States from Mexico during 1898:

Items.	Coining value.	
	Gold.	Silver.
Bullion deposited at mints	$1,486,222	$643,933
Bullion refined by private refineries	5,011,700	44,616,551
Total	6,497,922	45,260,484

From the above it is evident that of the $7,889,701 (value of gold exported from Mexico), the United States received $6,497,922, leaving a remainder of $1,391,779 to be accounted for as exports to other countries.

The United States received $45,260,484 of the total exports of silver ($50,153,288), leaving a remainder of $4,892,804, coining value, as exports elsewhere.

MINERAL DEPOSIT IN MEXICO.

The South American Journal, London, December 17, 1898, says that a most interesting discovery of ore has been made 5 miles from Chihuahua. The character and appearance of the deposit would not ordinarily invite any miner or prospector to give it a second thought, as it does not indicate any mineral ore. A recent assay has resulted in 15 ounces of silver and half an ounce of gold to the ton. The extent and quality of the ore lying below the surface is yet unknown, but the discoverers have been quarrying the ore in the same manner as rock is quarried from a bank. One hundred and fifty tons are being taken out daily and shipped by rail to El Paso for smelting. It nets the owners $15 Mexican per ton. From the appearance of the deposit on the surface, it is thought that many thousands of tons can be immediately extracted. The ore body is said to seem inexhaustible. The miners have penetrated it nearly 50 feet, and still have not reached the end. A shaft sunk some 120 feet developed the fact that this deposit lies nearly horizontal, under a bed of lime and conglomerated volcanic matter, and pitches with a slight angle toward the main valley. It is believed that the combination of silica, lime, manganese, and iron would indicate that the material was once held in solution, precipitated, and deposited as it is found to-day. It is black as coal to the eye, and covers many acres. The ore is low grade; but, since it can be extracted very cheaply, the immense quantity in sight is sure to prove remunerative. Claims and denouncements of property have been made for half a mile around the spot. The owners of the mine, it is said, intend to build a railway to connect with the Central Railroad, about 2 miles from Chihuahua. Only 3 miles of railroad will have to be built.

MINING INDUSTRY IN MEXICO.

The secretary of the embassy at Mexico, Mr. McCreery, sends, under date of April 3, 1899, copy of the message of President Diaz on the opening of Congress, from which the following paragraphs in regard to mining matters are taken:

> The mining industry is that which affords most evidences of rapid progress, as in the period covered by this report 1,040 title deeds, covering 11,408 pertenencias of 1 hectare[1] each, have been issued. The total number of title deeds issued, subject to

---

[1] 1 hectare=2.471 acres.

the new legislation of June, 1892, is 9,353, covering 77,774 pertenencias of 1 hectare each.

The exportation of ore has also increased to a noteworthy degree. Taking the figures recently published by the department of finance for the seven months July to January of the present fiscal year, it appears that the value of the exportation of mineral products, metallic and nonmetallic, was $54,311,000 in round figures, showing an increase of $1,043,000 over the value of the same products exported in the corresponding period of the previous year.

As an important event in the mining industry, I will state that the Adventurer Tunnel at Batopilas, which is nearly 3 kilometers (1.86 miles) in length, which has been fifteen years under construction and has cost millions of dollars, has just struck the principal lodes of the camp.

NEW GOLD MINES IN MEXICO.

Vice-Consul Taylor writes from Ensenada, May 20, 1899, in regard to the discovery of very rich gold placers near the San José and Santa Clara mountains, within 1 league of the Pacific coast. The port is Ascension Bay. There are already, says Mr. Taylor, about 2,000 persons on the ground. The mining camps of Santa Rosalie, San Iawa, and Calmallé are deserted. The placers are 3 leagues wide and 12 or 15 leagues long.

NORWAY.

Minister Thomas writes: "In 1898 the gold product was inconsiderable."

He says: "Nearly all the silver output is from the mines of Kongsberg, which produced from July 1, 1897, to July 1, 1898, about 5,392 kilograms of fine silver, which sold for 381,740.67 crowns." In default of figures for the calendar year, the product for 1898 is assumed to be the same as that of the fiscal year, viz, 5,392 kilograms, fine, with a United States coining value of $224,092, and the product for 1897, which was 5,260 kilograms, fine, which sold for 411,676.20 crowns, with a coining value of $218,606, is given for the fiscal year 1897.

The statistical yearbook of Norway for 1898 gives the following figures for the output of gold and silver from 1893 to 1896:

VALUE.

Metal.	1893.	1894.	1895.	1896.
	Crowns.	*Crowns.*	*Crowns.*	*Crowns.*
Gold	22,000	4,000	8,000	35,000
Silver	434,000	373,000	355,000	400,000

PERU.

The Peruvian Government does not collect statistics of its gold and silver production, and the annual value has heretofore been calculated by this Bureau from the coinage figures of the Peruvian mint and from the exports of silver. The mint having ceased the coinage of silver, except inconsiderable recoinage, and the export duty on silver having been abolished, it becomes necessary to resort to other means to obtain the results desired.

The Lima mint officially reports having received 309.7 kilograms, fine, in gold, in 1898. There is no doubt that this is far less than the true production of the country. Accordingly, the figures for 1897 are repeated for 1898.

The export of silver in 1898 was officially stated to be as follows:

	Soles.
Amalgam and bar silver	3,425,007
Ore	3,019,199
Sulphates	1,066,797
Total	7,511,003

One million six hundred thousand soles of this was of silver coin melted by the mint for export, leaving a net export of 5,911,003 soles of the year's product.

This, at the value of a sol, at the average price of silver for the year ($0.4268), is equivalent to $2,522,816, coining value, at which figure it appears in the table of the world's production for 1898.

For some years this Bureau has been doubtful of the accuracy of the silver estimates given in its tables, because they omitted the value of the ores exported. Last year the Bureau adopted the estimate of Don Alejandro Garland, of Peru, stating at the time that it was probably too high.

As the full export figures of Peru for 1896 and 1897 can not be obtained, resort is had to the European import tables, and from those the following figures were obtained:

SILVER EXPORTS OF PERU.

	1896.	1897.	1898.
To Great Britain	$454,000	$844,000	$580,000
To the United States	400,000	385,000	395,000
To Germany	*a*130,000	130,000	*a*130,000
To France	*a*110,000	110,000	*a*110,000
Total	1,094,000	1,469,000	1,215,000
Coining value	2,099,000	3,166,000	2,666,000
Add coinage *b*	2,875,000	1,073,000	120,000
Total coining value	4,974,000	4,239,000	2,786,000

a 1897 figures repeated for 1896 and 1898. *b* Including coinage for Ecuador.

Corresponding to 3,847,078, 3,278,602, and 2,154,797 ounces, fine, respectively.

The figures for 1898 given above agree closely enough with the official figures to justify a belief in the substantial accuracy of those for 1896 and 1897.

According to official statistics in the archives of the old palace in Lima, the value of the silver produced in Peru between 1630 and 1803 was $1,232,000,000. The mines of Hualgayoc, Huantajaya, and Cerro de Pasco alone yielded $849,445,500 during that period.

MINES AND INDUSTRIES IN PERU.

[From Consular Reports, November, 1898.]

The following extracts are from a British foreign office report (annual series 2117):

GOLD.

The late discoveries of quartz and placer gold mines in the districts of Sandia and Carabaya have induced many persons to prospect during the year; but as a rule they express themselves disappointed on their return, chiefly owing to the many difficulties they have to contend with outside of the natural ones arising from want of roads and the action of the local authorities, who do not seem to encourage the development of that part of the country as they should. Revolvers and shotguns are admitted, but no rifles. Those who come as pioneers, with the intention of going to an entirely unexplored region abounding in savages and wild beasts, naturally want better arms to defend themselves with than revolvers and shotguns. Again, when the explorers get to the confines of civilization and reach their starting point for the further interior where gold is found, they fall into the hands of men who speculate on the labor of the Indians. The houses of the labor contractors are probably the only ones inhabitable in the village, and there travelers are obliged to stay, for a consideration generally about ten times what it should be. To them you must apply for Indians, mules, llamas, or donkeys to carry your provisions, etc., a part of the way in (beyond a certain point it will not admit of animals), and, as no Indian will dare treat direct with a foreign traveler, these contractors will put every obstacle in the way of procuring Indians and animals, so as to prolong the stay in the village. The Indian will receive, say, 1s. (24 cents) a day from the contractor for the services of himself and his animal, and the traveler will have to pay at least 4s. (97 cents) a day to the contractor; and at length, when able to start, so many days' hire of the Indians must be paid in advance. All this makes an expedition in search of gold too expensive to be undertaken by the class of men best able to accomplish the object of developing an unexplored country on the chance of some good finds of the precious metal. Still, there is no doubt that gold in large quantities exists in these regions, or that when once the primary difficulties have been overcome capital will flow in with every prospect of a beneficial return.

PORTUGAL.

Heretofore this Bureau has relied on statements from its representatives, who reported that Portugal had neither gold nor silver mines. Both the French and British official reports, however, credit it with a small annual production.

Following are the figures of the British report for 1897: Gold, 17 kilograms; silver, 79 kilograms. These kilograms equal 15.583 kilograms, fine, of gold, at a value of $10,356, and the silver 73.075 kilograms, fine, at a coining value of $3,037. Statistique de l'Industrie Minerale, of 1897, puts the 1896 gold product at 28 kilograms, valued at 96,000 francs, or $18,528.

RUSSIA.

The gold product of Russia in 1898 is officially stated to be 38,313.839 kilograms, fine, of the value of 49,485,260 rubles, or $25,463,377.40.

The silver yield is stated to be 8,663.88261 kilograms, fine, of a value of 481,429.77 rubles, corresponding to $360,071 United States coining value.

According to the Russian Bulletin of Statistics (p. 86 et seq.), "slichgold" was derived from the following localities in 1895 and 1896:

Locality.	Alluvial gold.		Reef gold.	
	1895.	1896.	1895.	1896.
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*
Perm	4,437	4,283	573	611
Orenburg	2,391	2,645	2,317	2,023
Marie	410	516	34	24
Altai	1,507	1,736	131	98
Semipalatinsk, Akmolinsk, and Semiretchie	532	540		
Atchinsk, Minoussinsk, and Krasnoiarsk	974	843		
Ienissei	2,995	2,592		
Nertchinsk	2,548	2,624		
Olekminsk	11,793	9,009		
Amour	7,132	6,716		
Littoral	1,365	1,343		
Remainder of Siberia	1,751	1,478		
Eastern Siberia			204	110
Finland	9	7		
Total	37,844	34,532	3,259	2,866

This gold has an estimated fineness of 0.889.

Since 1891 the refineries have produced:

Year.	From silver ore.	From gold ore.	Total.
	Kilograms.	*Kilograms.*	*Kilograms.*
1892	10,272	3,416	13,688
1893	8,814	3,645	12,459
1894	6,433	3,547	9,980
1895	7,227	3,530	10,757
1896	3,170	3,230	10,400

Silver has been produced since 1821, from ore and silver lead, as follows:

Years.	Kilograms (0.910 fine).	Years.	Kilograms (0.910 fine).
1822-1825	74,367	1861-1865	86,158
1826-1830	94,679	1866-1870	81,451
1831-1835	104,200	1871-1875	57,479
1836-1840	99,154	1876-1880	55,334
1841-1845	97,969	1881-1885	44,735
1846-1850	93,218	1886-1890	72,218
1851-1855	85,782	1891-1895	50,108
1856-1860	86,916	1896	7,813

Corresponding to 1,081,000 kilograms, fine, or an average of about 15,000 kilograms yearly.

Schlich gold contains an average of one-eleventh of fine silver. Its production since 1822 having amounted, in round numbers, to 1,800,000 kilograms, an allowance of 163,800 kilograms of fine silver may be estimated from this source, making the total production of silver for seventy-five years nearly 1,250,000 kilograms, fine—an average of 17,000 kilograms yearly.

SERVIA.

Servia has not heretofore figured in these reports, its product of precious metals having been small, and no figures regarding it having been obtainable. The Statistique de l'Industrie Minerale for 1897, however, places its gold product for 1896 at 20 kilograms, fine, valued at 69,000 francs, and its silver product at 570 kilograms, fine, valued at 60,000 francs. These amounts correspond to $13,292 for the gold and to $23,689 (coining value) for the silver. In default of later figures the same values are assumed for 1897 and 1898.

SPAIN.

No official figures have been received from Spain regarding the product of gold and silver for 1898. The Statistique de l'Industrie Minerale states that the gold output in 1897 was valued at 196,000 francs—57 kilograms, fine—equivalent to $37,882; and that the silver output was 185,352 kilograms, fine, equivalent to $7,703,229, United States coining value; and in the absence of data for 1898 it is assumed to have been the same as 1897.

SWEDEN.

Sweden produced, in 1898, 125.9 kilograms of gold, of the value of 311,892 crowns, or $83,587; and 2,032.9 kilograms of silver, of the value of 144,025 crowns, or $38,599 commercial value, or $84,487 coining value.

URUGUAY.

Minister Finch states that no figures yet exist for 1898, but that in 1897 there were produced 89 kilograms of gold, with a value of $38,506. This value represents 58 kilograms, fine.

VENEZUELA.

Under date of May 8, 1899, Minister F. B. Loomis writes that information as to the production of gold is very scanty. He estimates the production from placer mines at $25,000 per month, which he thinks is a very moderate figure.

The following table is taken from the report of the minister of agriculture, industry, and commerce:

Production of Gold Quartz Mines in Venezuela.

Year.	Value.
	Bolivars.
1894	689, 541
1895	1, 292, 834
1896	1, 267, 316
1897	267, 024
1898	208, 320

The bolivar is worth $0.19.3, making the value of the quartz production for 1898 amount to $40,206; adding $300,000 for the alluvial product, we have the total product $340,206, corresponding to a weight of 512 kilograms, fine. Official figures for 1896 placed the output at 1,427 kilograms, fine, valued at $948,500.

Either the gold product of the country has fallen off tremendously since 1896 or the estimate of the value of the placers is much too low.

The Statistique de l'Industrie Minerale states that the production of Venezuela for 1897 was 1,591 kilograms, valued at 5,481,000 francs. This evidently applies to fine kilograms, and corresponds to $1,057,379. Accordingly the French estimate for 1897 is adopted.

GOLD DREDGING IN VENEZUELA.

[From The Engineering and Mining Journal, New York, May 6, 1899, p. 529; by Frank Owen.]

In the Engineering and Mining Journal of March 25 there was a query from a correspondent as to alluvial mining in the tropics, more especially with reference to South America. It may, therefore, interest some of your readers to learn that an experiment of this kind is now being carried out on a considerable scale at El Callao, on the Yuruari River, in Venezuelan Guiana. The people in question are the Yuruari Gold Dredging and Improvement Company, with headquarters at Columbus, Ga. Mr. Josiah Flournoy is the general manager, and the dredge machinery was built by the Bucyrus Company, after designs by Mr. A. E. Ramsdell, who superintended its erection. The dredge is of the dipper type, having a capacity of 1½ cubic yards each time it is lowered, and it has taken in all about six months to erect. Taking into consideration the climate, the difficulties of transport (caused by the revolution of last year and the bad state of the roads through heavy rains), and the poor quality of labor available (West Indian negroes), this is quick work for Venezuela. The dredge is complete in every way, even down to refrigerating and electric-lighting plants, and reflects great credit on Messrs. Flournoy & Ramsdell and their staff of mechanics.

The scow on which the dredging machinery rests, and that for the gold saving riffles, are of Florida pitch pine. Most of the other woodwork is of Venezuelan hard wood—chiefly "green heart" and "purple heart"—which, though heavy, is very strong and durable. The dredge has a stern paddle wheel to enable it to ascend and descend the river; also a grab for removing bowlders up to 5 tons weight. The total outlay has been, I am told, something like $125,000 gold.

The concession on the Yuruari River is 5 miles long, with 500 feet on each bank all along. I left Venezuela shortly before the dredge got to actual work, so can not yet say what results have been achieved.

It is, however, well known that there is considerable gold in the River Yuruari, for in the dry season, when the river is low, it is worked out by hand with "bateas."

I am credibly informed that dredges of the type described are at work in Georgia, which handle gravel at a cost of 2½ cents per cubic yard. I understand they estimate that work in Venezuela can be done at a cost of about 10 cents per cubic yard. The principal item will be cord wood, costing 7 pesos, Venezuelan ($5.60, United States), per cord (5 by 5 feet by 5 feet 6 inches), delivered alongside, 1 peso per cord being royalty to the owner of the land on which the wood is cut.

This experiment will be watched with much interest by many acquainted with mining in South America, and if Mr. Flournoy and his associates do not attain such success as one desires them in their enterprise they have most certainly done everything to deserve it.

THE YUKON.

For the production of this district see Canada and Alaska.

PART III.

GENERAL STATISTICS.

I.—Deposits and Purchases of Gold and Silver, by Weight,

Description of deposits.	COINAGE MINTS.				ASSAY OFFICES.
	Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
GOLD.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*
Domestic bullion, unrefined	14, 593. 175	225, 806. 985	17, 236. 881	517. 444	357, 610. 659
Domestic bullion, refinery bars	256. 682				513, 219. 473
Domestic bullion, refined	526. 300	1, 120, 027. 896			469, 683. 098
Total domestic bullion	15, 376. 157	1, 345, 834. 881	17, 236. 881	517. 444	1, 340, 513. 230
Domestic coin, Treasury transfers	27, 390. 180	2, 124. 760			
Domestic coin, mutilated and abraded	5, 180. 239	203. 805		696. 525	35, 263. 610
Foreign bullion, unrefined	10, 064. 054	130, 538. 014		13, 636. 637	122, 284. 199
Foreign bullion, refined		106, 648. 971			1, 855, 415. 318
Foreign coin	39, 178. 088	1, 734, 082. 824		203. 171	1, 293, 890. 605
Jewelers' bars, old plate, etc	37, 477. 727	1, 727. 399	14. 912	3, 563. 079	109, 666. 596
Total deposits	134, 666. 445	3, 321, 160. 654	17, 251. 793	18, 616. 856	4, 757, 033. 558
Redeposits:					
Fine bars	930, 562. 246	30, 450. 417			27, 431. 571
Mint bars	1, 231, 905. 132				
Unparted bars	1, 037, 484. 849	9, 467. 767			196. 710
Total redeposits	3, 199, 952. 227	39, 918. 184			27, 628. 281
Total gold operated upon	3, 334, 618. 672	3, 361, 078. 838	17, 251. 793	18, 616. 856	4, 784, 661. 839
SILVER.					
Domestic bullion, unrefined	25, 061. 60	47, 035. 50	144, 449. 64	145. 73	257, 157. 75
Domestic bullion, refinery bars					101, 165. 12
Domestic bullion, refined	38, 316. 72				5, 132, 499. 72
Total domestic bullion	63, 378. 32	47, 035. 50	144, 449. 64	145. 73	5, 490, 822. 59
Domestic coin, Treasury transfers	5, 333, 051. 47	136, 657. 60		1, 011, 375. 80	
Domestic coin, mutilated and abraded	2, 479. 54	116. 10		962. 90	
Trade dollars	183. 57			4. 30	
Foreign bullion, unrefined	2, 160. 53	61, 374. 33		3, 351. 24	525, 679. 75
Foreign bullion, refined					20, 323. 29
Foreign coin				1. 23	23, 433. 14
Jewelers' bars, old plate, etc	74, 441. 04	538. 68	21. 96	6, 399. 06	469, 735. 18
Total deposits	5, 475, 694. 47	245, 722. 21	144, 471. 60	1, 022, 240. 26	6, 529, 993. 95
Redeposits:					
Fine bars		2, 019, 882. 80		4, 854, 502. 54	14, 944. 10
Standard bars				215, 694. 20	
Unparted bars	191, 519. 35	75, 165. 14			67. 60
Total redeposits	191, 519. 35	2, 095, 047. 94		5, 070, 196. 74	15, 011. 70
Total silver operated upon	5, 667, 213. 82	2, 340, 770. 15	144, 471. 60	6, 092, 437. 00	6, 545, 005. 65

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

ASSAY OFFICES.							Total.
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.	
Stand. ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*
160,729.868	58,896.297	104,347.316	10,830.729	1,271.496	7,831.675	14,474.577	974,147.102
371,872.091	....	....	2,505.696	2,104.140	....	....	889,958.082
549,186.454	....	....	....	....	....	....	2,139,423.748
1,081,788.413	58,896.297	104,347.316	13,336.425	3,375.636	7,831.675	14,474.577	4,003,528.932
....	....	....	....	....	....	....	29,514.940
3.705	....	....	....	18.180	....	....	41,366.064
264.682	255.222	14,705.520	....	46.592	....	283,228.486	575,023.406
....	....	....	....	....	....	....	1,962,064.289
....	....	....	....	....	....	....	3,067,354.688
1,881.779	....	65.381	252.485	2,537.568	....	28.144	157,215.070
1,083,938.579	59,151.519	119,118.217	13,588.910	5,977.976	7,831.675	297,731.207	9,836,067.389
....	....	....	....	20.678	....	....	988,464.912
....	....	....	....	....	....	....	1,231,905.132
90.008	14,235.553	289.925	....	....	....	2,331.518	1,064,096.330
90.008	14,235.553	289.925	....	20.678	....	2,331.518	3,284,466.374
1,084,028.587	73,387.072	119,408.142	13,588.910	5,998.654	7,831.675	300,062.725	13,120,533.763
44,001.04	17,623.48	31,969.04	1,112.54	64.82	1,335.18	3,405.74	573,362.06
11,289.03	....	....	....	5.09	....	....	112,459.24
....	....	....	....	....	....	....	5,170,816.44
55,290.07	17,623.48	31,969.04	1,112.54	69.91	1,335.18	3,405.74	5,856,637.74
....	....	....	....	....	....	....	6,481,084.87
....	....	....	....	....	....	....	3,558.54
....	....	....	....	....	....	....	187.87
92.03	69.09	4,123.01	....	5.49	....	78,806.05	675,661.52
....	....	....	....	....	....	....	20,323.29
....	....	....	....	....	....	....	23,434.37
622.54	....	13.90	106.95	780.42	....	2.23	552,661.96
56,004.64	17,692.57	36,105.95	1,219.49	855.82	1,335.18	82,214.02	13,613,550.16
....	....	....	....	....	....	....	6,889,329.44
....	....	....	....	....	....	....	215,694.20
39.20	3,071.97	108.02	....	....	....	352.56	270,323.84
39.20	3,071.97	108.02	....	....	....	352.56	7,375,347.48
56,043.84	20,764.54	36,213.97	1,219.49	855.82	1,335.18	82,566.58	20,988,897.64

II.—DEPOSITS AND PURCHASES OF GOLD AND SILVER, BY VALUE,

[Value of gold per standard ounce, $18.604+; value of silver per standard

Description of deposits.	COINAGE MINTS.				ASSAY OFFICES.
	Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
GOLD.					
Domestic bullion, unrefined	$271, 500. 93	$4, 201, 060. 19	$320, 686. 16	$9, 026. 86	$6, 653, 221. 56
Domestic bullion, refinery bars	4, 775. 48				9, 548, 269. 27
Domestic bullion, refined	9, 791. 63	20, 837, 728. 30			8, 738, 290. 20
Total domestic bullion	286, 068. 04	25, 038, 788. 49	320, 686. 16	9, 626. 86	24, 939, 781. 03
Domestic coin, Treasury transfers	509, 584. 74	39, 530. 41			
Domestic coin, mutilated and abraded	96, 376. 53	3, 791. 72		12, 958. 60	656, 067. 16
Foreign bullion, unrefined	187, 238. 21	2, 428, 614. 21		253, 704. 88	2, 275, 054. 86
Foreign bullion, refined		1, 984, 166. 90			34, 519, 354. 75
Foreign coin	728, 894. 67	32, 262, 006. 03		3, 779. 93	24, 072, 383. 34
Jewelers' bars, old plate, etc	697, 260. 04	32, 137. 66	277. 43	66, 289. 84	2, 040, 308. 77
Total deposits	2, 505, 422. 23	61, 789, 035. 42	320, 963. 59	346, 360. 11	88, 502, 949. 91
Redeposits:					
Fine bars	17, 312, 785. 97	566, 519. 39			510, 354. 81
Mint bars	22, 919, 165. 25				
Unparted bars	19, 302, 043. 70	176, 144. 50			3, 659. 72
Total redeposits	59, 533, 994. 92	742, 663. 89			514, 014. 53
Total gold operated upon	62, 039, 417. 15	62, 531, 699. 31	320, 963. 59	346, 360. 11	89, 016, 964. 44
SILVER.					
Domestic bullion, unrefined	29, 162. 59	54, 732. 22	168, 086. 85	169. 57	299, 238. 11
Domestic bullion, refinery bars					117, 719. 41
Domestic bullion, refined	44. 586. 73				5, 972, 363. 31
Total domestic bullion	73, 749. 32	54, 732. 22	168, 086. 85	169. 57	6, 389, 320. 83
Domestic coin, Treasury transfers	6, 205, 732. 61	159, 019. 75		1, 176, 873. 66	
Domestic coin, mutilated and abraded	2, 885. 28	135. 10		1, 120. 47	
Trade dollars	213. 61			5. 00	
Foreign bullion, unrefined	2, 514. 07	71, 417. 40		3, 899. 62	611, 700. 07
Foreign bullion, refined					23, 648. 92
Foreign coin				1. 43	27, 267. 65
Jewelers' bars, old plate, etc	86, 622. 31	626. 83	25. 55	7, 446. 18	546, 600. 94
Total deposits	6, 371, 717. 20	285, 931. 30	168, 112. 40	1, 189, 515. 93	7, 598, 538. 41
Redeposits:					
Fine bars		2, 350, 409. 07		5, 648, 875. 68	17, 389. 50
Standard bars				250, 989. 61	
Unparted bars	222, 858. 88	87, 464. 89			78. 66
Total redeposits	222, 858. 88	2, 437, 873. 96		5, 899, 865. 29	17, 468. 16
Total silver operated upon	6, 594, 576. 08	2, 723, 805. 26	168, 112. 40	7, 089, 381. 22	7, 616, 006. 57

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

ounce, $1.163+, coining rate in United States silver dollars.]

ASSAY OFFICES.							Total.
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.	
$2,990,323.12	$1,095,745.06	$1,941,345.42	$201,501.94	$23,655.74	$145,705.58	$269,294.46	$18,123,667.02
6,918,550.53	....	....	46,617.60	39,146.78	....	....	16,557,359.66
10,217,422.40	....	....	....	....	....	....	39,803,232.53
20,126,296.05	1,095,745.06	1,941,345.42	248,119.54	62,802.52	145,705.58	269,294.46	74,484,259.21
....	....	....	....	....		....	549,115.15
68.93	....	....	....	338.23	....	....	769,601.17
4,924.32	4,748.31	273,591.07	....	866.83	....	5,269,367.18	10,698,109.87
....	....	....	....	....	....	....	36,503,521.65
....	....	....	....	....	....	....	57,067,063.97
35,009.84	....	1,216.39	4,697.39	47,210.57	....	523.61	2,924,931.54
20,166,299.14	1,100,493.37	2,216,152.88	252,816.93	111,218.15	145,705.58	5,539,185.25	182,996,602.56
....	....	....	....	384.71	....	....	18,390,044.88
....	....	....	....	....	....	....	22,919,165.25
1,674.57	264,847.50	5,393.95	....	....	....	43,377.08	19,797,141.02
1,674.57	264,847.50	5,393.95	....	384.71	....	43,377.08	61,106,351.15
20,167,973.71	1,365,340.87	2,221,546.83	252,816.93	111,602.86	145,705.58	5,582,562.33	244,102,953.71
51,201.20	20,507.31	37,200.33	1,294.59	75.43	1,553.66	3,963.03	667,184.89
13,136.33	....	....	....	5.92	....	....	130,861.66
....	....	....	....	....	....	....	6,016,950.04
64,337.53	20,507.31	37,200.33	1,294.59	81.35	1,553.66	3,963.03	6,814,996.59
....	....	....	....	....	....	....	7,541,626.02
....	....	....	....	....	....	....	4,140.85
....	....	....	....	....	....	....	218.61
107.09	80.40	4,797.68	....	6.39	....	91,701.59	786,224.31
....	....	....	....	....	....	....	23,648.92
....	....	....	....	....	....	....	27,269.08
724.41	....	16.18	124.45	908.12	....	2.60	643,097.57
65,169.03	20,587.71	42,014.19	1,419.04	995.86	1,553.66	95,667.22	15,841,221.95
....	....	....	....	....	....	....	8,016,674.25
....	....	....	....	....	....	....	250,989.61
45.61	3,574.66	125.70	....	....	....	410.25	314,558.65
45.61	3,574.66	125.70	....	....	....	410.25	8,582,222.51
65,214.64	24,162.37	42,139.89	1,419.04	995.86	1,553.66	96,077.47	24,423,444.46

III.—Deposits of Unrefined Gold of Domestic Production, with the States below 0.992) and Refined Bullion (Fineness 0.992 and over) of Domestic December 31, 1898.

	Source.	COINAGE MINTS.				ASSAY OFFICES.
		Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
		Stand. ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*
1	Alabama				202. 428	
2	Alaska		8, 822. 696	16. 299		33. 509
3	Arizona		26, 699. 174			1, 185. 301
4	California	27. 576	171, 653. 959	1, 584. 164		92. 448
5	Colorado	283. 521	7. 101			573. 393
6	Georgia	556. 930			1. 891	107. 172
7	Idaho	1, 139. 645	1, 371. 510			1, 125. 757
8	Iowa	7. 989				
9	Maryland	31. 734				
10	Maine					1, 387. 131
11	Michigan	. 157				3. 172
12	Minnesota	7. 270				
13	Montana	1, 077. 212	32. 862			12, 117. 218
14	Nevada	7, 681. 471	2, 856. 676	15, 636. 418		84, 474. 157
15	New Mexico	149. 076	161. 403		265. 534	343. 334
16	New York	56. 912				
17	North Carolina	2, 669. 532				236. 051
18	Oregon	18. 289	7, 868. 295			38. 412
19	South Carolina	59. 836				
20	South Dakota	22. 834				247, 366. 715
21	Tennessee				40. 919	
22	Texas				6. 672	
23	Utah		4, 229. 031			8, 454. 645
24	Virginia	158. 696				63. 516
25	Washington	23. 320	2, 072. 128			5. 366
26	West Virginia	7. 463				
27	Wisconsin	42. 142				
28	Wyoming	3. 946	10. 783			3. 362
29	Other	567. 624	21. 367			
	Total unrefined	14, 593. 175	225, 806. 985	17, 236. 881	517. 444	357, 610. 659
	Refinery bars (fineness below 0.992)	256. 682				513, 219. 473
	Refined bullion (fineness 0.992 and over)	526. 300	1, 120, 027. 896			469, 683. 098
	Total gold	15, 376. 157	1, 345, 834. 881	17, 236. 881	517. 444	1, 340, 513. 230

and Territories Producing the Same, and also of Refinery Bars (Fineness
Bullion not Distributed, by Weight, during the Calendar Year ended

ASSAY OFFICES.							Total.	
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
Stand. ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	
....	....	....	53.752	....	....	....	256.180	1
1,164.241	....	155.006	....	4.157	....	12,834.023	23,029.931	2
11,937.391	....	....	....	....	....	....	39,821.866	3
19.211	....	....	....	5.590	....	....	173,373.948	4
124,733.428	16.624	....	....	....	....	....	125,614.067	5
....	....	....	6,115.556	24.354	....	....	6,805.903	6
45.011	27,693.847	15,069.776	....	13.406	....	107.850	46,566.802	7
....	....	....	....	....	....	....	7.989	8
....	....	....	....	....	....	....	31.734	9
....	....	....	....	....	....	....	1,387.131	10
....	....	....	....	....	....	....	3.329	11
....	....	....	....	....	....	....	7.270	12
18.431	8,940.119	84,263.148	....	....	....	11.125	106,460.115	13
57.796	....	....	....	....	....	....	110,706.518	14
6,065.715	....	....	....	1,049.639	....	....	8,034.701	15
....	....	....	....	....	....	....	56.912	16
....	....	....	1,434.542	103.941	....	....	4,444.066	17
172.948	22,000.838	2,089.480	....	....	....	98.541	32,286.803	18
....	....	....	3,210.948	....	....	....	3,270.784	19
11,768.529	....	....	....	60,761	7,831.675	....	267,050.514	20
....	....	....	5.217	....	....	....	46.136	21
....	....	....	....	....	....	....	6.672	22
4,563.236	162.157	....	....	....	....	....	17,409.069	23
....	....	....	10.714	....	....	....	232.926	24
....	82.712	2,764.223	....	....	....	1,423.038	6,370.787	25
....	....	....	....	....	....	....	7.463	26
....	....	....	....	....	....	....	42.142	27
192.931	....	5.683	....	....	....	....	216.705	28
....	....	....	....	9.648	....	....	598.639	29
160,729.868	58,896.297	104,347.316	10,830.729	1,271.496	7,831.675	14,474.577	974,147.102	
371,872.091	....	....	2,505.696	2,104.140	....	....	889,958.082	
549,186.454	....	....	....	....	....	....	2,139,423.748	
1,081,788.413	58,896.297	104,347.316	13,336.425	3,375.636	7,831.675	14,474.577	4,003,528.932	

IV.—Deposits of Unrefined Gold of Domestic Production, with the States below 0.992) and Refined Bullion (Fineness 0.992 and over) of Domestic December 31, 1898.

	Source.	Coinage mints.				Assay offices.
		Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
1	Alabama				$3, 766. 10	
2	Alaska		$164, 143. 18	$303. 24		$623. 42
3	Arizona		496, 728. 82			22, 052. 11
4	California	$513. 04	3, 193, 562. 03	29, 472. 82		1, 719. 96
5	Colorado	5, 274. 81	132. 11			10, 667. 78
6	Georgia	10, 361. 49			35. 18	1, 993. 90
7	Idaho	21, 202. 70	25, 516. 47			20, 944. 32
8	Iowa	148. 63				
9	Maine					25, 807. 09
10	Maryland	590. 40				
11	Michigan	2. 92				59. 02
12	Minnesota	135. 25				
13	Montana	20, 041. 15	611. 39			225, 436. 61
14	Nevada	142, 911. 09	53, 147. 46	290, 910. 10		1, 571, 612. 22
15	New Mexico	2, 773. 51	3, 002. 85		4, 940. 17	6, 387. 61
16	New York	1, 058. 83				
17	North Carolina	49, 665. 71				4, 391. 65
18	Oregon	340. 26	146, 386. 88			714. 64
19	South Carolina	1, 113. 23				
20	South Dakota	424. 82				4, 602, 171. 44
21	Tennessee				761. 28	
22	Texas				124. 13	
23	Utah		78, 679. 65			157, 295. 72
24	Virginia	2, 952. 48				1, 181. 69
25	Washington	433. 86	38, 551. 22			99. 83
26	West Virginia	138. 85				
27	Wisconsin	784. 04				
28	Wyoming	73. 41	200. 61			62. 55
29	Other	10, 560. 45	397. 52			
	Total unrefined	271, 500. 93	4, 201, 060. 19	320, 686. 16	9, 626. 86	6, 653, 221. 56
	Refinery bars (fineness below 0.992)	4, 775. 48				9, 548, 269. 27
	Refined bullion (fineness 0.992 and over)	9, 791, 63	20, 837, 728. 30			8, 738, 290. 20
	Total gold	286, 068. 04	25, 038, 788. 49	320, 686. 16	9, 626. 86	24, 939, 781. 03

AND TERRITORIES PRODUCING THE SAME, AND ALSO OF REFINERY BARS (FINENESS
BULLION NOT DISTRIBUTED, BY VALUE, DURING THE CALENDAR YEAR ENDED

ASSAY OFFICES.							Total.	
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
			$1, 000. 04				$4, 766. 14	1
$21, 660. 30		$2, 883. 83		$77. 34		$238,772.52	428, 463. 83	2
222, 091. 00							740, 871. 93	3
189. 97				104. 00			3, 225, 561. 82	4
2, 320, 621. 91	$309. 28						2, 337, 005. 89	5
			113, 777. 79	453. 10			126, 621. 46	6
837. 41	515, 234. 36	280, 367. 93		249. 41		2, 006. 51	866, 359. 11	7
							148. 63	8
							25, 807. 09	9
							590. 40	10
							61. 94	11
							135. 25	12
342. 90	166, 327. 80	1, 567, 686. 48				206. 98	1, 980, 653. 31	13
1, 075. 28							2, 059, 656. 15	14
112, 850. 51				19, 528. 17			149, 482. 82	15
							1, 058. 83	16
			26, 689. 15	1, 933. 78			82, 680. 29	17
3, 217. 64	409, 317. 92	38, 874. 05				1, 833. 32	600, 684. 71	18
			59, 738. 57				60, 851. 80	19
218, 949. 38				1, 130. 44	$145,705.58		4, 968, 381. 66	20
			97. 06				858. 34	21
							124. 13	22
84, 897. 41	3, 016. 87						323, 889. 65	23
			199. 33				4, 333. 50	24
	1, 538. 83	51, 427. 40				26, 475. 13	118, 526. 27	25
							138. 85	26
							784. 04	27
3, 589. 41		105. 73					4, 031. 71	28
				179. 50			11, 137. 47	29
2, 990, 323. 12	1, 095, 745. 06	1, 941, 345. 42	201, 501. 94	23, 655. 74	145, 705. 58	269, 294. 46	18, 123, 667. 02	
6, 918, 550. 53			46, 617. 60	39, 146. 78			16, 557, 359. 66	
10, 217, 422. 40							39, 803, 232. 53	
20, 126, 296. 05	1, 095, 745. 06	1, 941, 345. 42	248, 119. 54	62, 802. 52	145, 705. 58	269, 294. 46	74, 484, 259. 21	

V.—Deposits of Unrefined Silver of Domestic Production, with the States below 0.992) and Refined Bullion (Fineness 0.992 and over) of Domestic December 31, 1898.

	Source.	COINAGE MINTS.				ASSAY OFFICES.
		Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
		Stand. ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*
1	Alabama				47.49	
2	Alaska		2,142.38	6.84		8.88
3	Arizona		8,080.97			403.26
4	California	3.72	30,537.27	727.22		61.53
5	Colorado	24.55	2.85			5,710.87
6	Georgia	52.97			.21	60.61
7	Idaho	8,418.60	432.25			109.67
8	Iowa	1.38				
9	Maine					2,623.35
10	Maryland	.71				
11	Michigan	1,103.03				26,151.52
12	Minnesota	1.88				
13	Montana	2,956.33	7.01			30,772.26
14	Nevada	11,857.23	574.73	143,715.58		135,146.48
15	New Mexico	20.94	2.67		94.37	11,789.42
16	New York	.53				
17	North Carolina	300.86				80.78
18	Oregon	1.71	1,644.81			2.84
19	South Carolina	9.62				
20	South Dakota	10.44				43,342.57
21	Tennessee					
22	Texas				3.66	
23	Utah		3,076.46			890.42
24	Virginia	14.46				1.43
25	Washington	6.20	523.32			1.86
26	West Virginia	1.49				
27	Wisconsin	27.09				
28	Wyoming	.64	5.87			
29	Other	247.22	4.91			
	Total unrefined	25,061.60	47,035.50	144,449.64	145.73	257,157.75
	Refinery bars (fineness below 0.992)					101,165.12
	Refined bullion (fineness 0.992 and over)	38,316.72				5,132,499.72
	Total silver	63,378.32	47,035.50	144,449.64	145.73	5,490,822.59

and Territories Producing the Same, and also of Refinery Bars (Fineness
Bullion not Distributed, by Weight, during the Calendar Year ended

ASSAY OFFICES.							Total.	
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
Stand. ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	
....	....	....	11.30	....	....	....	58.79	1
339.84	....	24.58	....	1.15	....	2,818.04	5,341.71	2
4,269.46	....	....	....	....	....	....	12,758.69	3
1.34	....	....	....	1.52	....	....	31,332.60	4
34,330.99	6.48	....	....	....	....	....	40,075.74	5
....	....	....	419.75	.69	....	....	534.23	6
9.18	10,604.36	2,869.54	....	.71	....	18.23	22,462.54	7
....	....	....	....	....	....	....	1.38	8
....	....	....	....	....	....	....	2,623.35	9
....	....	....	....	....	....	....	.71	10
....	....	....	....	....	....	....	27,254.55	11
....	....	....	....	....	....	....	1.88	12
1.44	560.27	27,956.90	....	....	....	.67	62,254.88	13
43.44	....	....	....	....	....	....	291,337.46	14
990.89	....	....	....	48.54	....	....	12,946.83	15
....	....	....	....	....	....	....	.53	16
....	....	....	340.59	7.82	....	....	730.05	17
20.11	6,388.66	455.39	....	....	....	12.06	8,525.58	18
....	....	....	340.28	....	....	....	349.90	19
962.69	....	....	....	2.02	1,335.18	....	45,652.90	20
....	....	....	.62	....	....	....	.62	21
....	....	....	....	....	....	....	3.66	22
2,995.58	39.14	....	....	....	....	....	7,001.60	23
....	....	....	....	....	....	....	15.89	24
....	24.57	662.25	....	....	....	556.74	1,774.94	25
....	....	....	....	....	....	....	1.49	26
....	....	....	....	....	....	....	27.09	27
36.08	....	.38	....	....	....	....	42.97	28
....	....	....	....	2.37	....	....	254.50	29
44,001.04	17,623.48	31,969.04	1,112.54	64.82	1,335.18	3,405.74	573,362.06	
11,289.03	....	....	....	5.09	....	....	112,459.24	
....	....	....	....	....	....	....	5,170,816.44	
55,290.07	17,623.48	31,969.04	1,112.54	69.91	1,335.18	3,405.74	5,856,637.74	

VI.—Deposits of Unrefined Silver of Domestic Production, with the States below 0.992) and Refined Bullion (Fineness 0.992 and over) of Domestic December 31, 1898.

	Source.	Coinage mints.				Assay offices.
		Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
1	Alabama				$55.26	
2	Alaska		$2,492.95	$7.96		$10.33
3	Arizona		9,403.31			469.25
4	California	$4.33	35,534.28	846.22		71.60
5	Colorado	28.57	3.32			6,645.38
6	Georgia	61.64			.24	70.53
7	Idaho	9,796.19	502.98			127.62
8	Iowa	1.61				
9	Maine					3,052.62
10	Maryland	.83				
11	Michigan	1,283.53				30,430.86
12	Minnesota	2.19				
13	Montana	3,440.09	8.16			35,807.72
14	Nevada	13,797.50	668.78	167,232.67		157,261.36
15	New Mexico	24.37	3.11		109.81	13,718.60
16	New York	.62				
17	North Carolina	350.09				94.00
18	Oregon	1.99	1,913.96			3.30
19	South Carolina	11.19				
20	South Dakota	12.15				50,434.99
21	Tennessee					
22	Texas				4.26	
23	Utah		3,579.88			1,036.13
24	Virginia	16.83				1.66
25	Washington	7.21	608.95			2.16
26	West Virginia	1.73				
27	Wisconsin	31.52				
28	Wyoming	.74	6.83			
29	Other	287.67	5.71			
	Total unrefined	29,162.59	54,732.22	168,086.85	169.57	299,238.11
	Refinery bars (fineness below 0.992)					117,719.41
	Refined bullion (fineness 0.992 and over)	44,586.73				5,972,363.31
	Total silver	73,749.32	54,732.22	168,086.85	169.57	6,389,320.83

VII.—Bars Manufactured of Gold and Silver, by Weight,

Description.	Coinage mints.				Assay offices.
	Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
GOLD.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*
Fine bars	38,000.971		30,453.071	95.380	3,117,121.326
Mint bars					752,289.494
Standard bars					964,786.817
Unparted bars					.199
Total gold	38,000.971		30,453.071	95.380	4,834,197.836
SILVER.					
Fine bars	122,830.31		235,981.05	5,372.97	6,283,433.54
Mint bars					174,958.56
Standard bars				47.76	4,960.71
Unparted bars					8,941.14
Total silver	122,830.31		235,981.05	5,420.73	6,472,293.95

AND TERRITORIES PRODUCING THE SAME, AND ALSO OF REFINERY BARS (FINENESS BULLION NOT DISTRIBUTED, BY VALUE, DURING THE CALENDAR YEAR ENDED

ASSAY OFFICES.							Total.	
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
			$13.15				$68.41	1
$395.45		$28.60		$1.34		$3,279.17	6,215.80	2
4,968.10							14,840.66	3
1.56				1.77			36,459.76	4
39,948.78	$7.54						46,633.59	5
			488.44	.80			621.65	6
10.68	12,339.61	3,339.10		.83		21.21	26,138.22	7
							1.61	8
							3,052.62	9
							.83	10
							31,714.39	11
							2.19	12
1.68	651.95	32,531.66				.78	72,442.04	13
50.55							339,010.86	14
1,153.04				56.48			15,065.41	15
							.62	16
			396.32	9.10			849.51	17
23.40	7,434.08	529.91				14.03	9,920.67	18
			395.96				407.15	19
1,120.22				2.35	$1,553.66		53,123.37	20
			.72				.72	21
							4.26	22
3,485.76	45.54						8,147.31	23
							18.49	24
	28.59	770.62				647.84	2,065.37	25
							1.73	26
							31.52	27
41.98		.44					49.99	28
				2.76			296.14	29
51,201.20	20,507.31	37,200.33	1,294.59	75.43	1,553.66	3,963.03	667,184.89	
13,136.33				5.92			130,861.66	
							6,016,950.04	
64,337.53	20,507.31	37,200.33	1,294.59	81.35	1,553.66	3,963.03	6,814,996.59	

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

ASSAY OFFICES.							Total.
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.	
Stand. ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*
549,186.454							3,734,857.202
							752,289.494
							964,786.817
534,752.125	59,151.519	119,118.217	13,588.910	5,977.976	7,831.675	297,731.207	1,038,151.828
1,083,938.579	59,151.519	119,118.217	13,588.910	5,977.976	7,831.675	297,731.207	6,490,085.341
							6,647,617.87
							174,958.56
							5,008.47
56,004.64	17,692.57	36,105.95	1,219.49	855.82	1,335.18	82,214.02	204,368.81
56,004.64	17,692.57	36,105.95	1,219.49	855.82	1,335.18	82,214.02	7,031,953.71

VIII.—BARS MANUFACTURED OF GOLD AND SILVER, BY VALUE,

Description.	COINAGE MINTS.				ASSAY OFFICES.
	Philadelphia.	San Francisco.	Carson.	New Orleans.	New York.
GOLD.					
Fine bars	$706, 994. 81		$566, 568. 76	$1, 774. 51	$57, 992, 954. 90
Mint bars					13, 996, 083. 60
Standard bars					17, 949, 522. 18
Unparted bars					3. 70
Total gold	706, 994. 81		566, 568. 76	1, 774. 51	89, 938, 564. 38
SILVER.					
Fine bars	142, 929. 81		274, 596. 13	6, 252. 18	7, 311, 631. 76
Mint bars					203, 588. 14
Standard bars				55. 58	5, 772. 46
Unparted bars					10, 404. 24
Total silver	142, 929. 81		274, 596. 13	6, 307. 76	7, 531, 396. 60
Total gold and silver	849, 924. 62		841, 164. 89	8, 082. 27	97, 469, 960. 98

IX.—STATEMENT OF DOMESTIC MUTILATED AND UNCURRENT GOLD AND SILVER FOR RECOINAGE, SHOWING WEIGHT, FACE VALUE, COINING VALUE,

Denomination.	PHILADELPHIA.		SAN FRANCISCO.	
	Received from Treasury.	Purchased.	Received from Treasury.	Purchased.
GOLD.				
Double eagles	$107, 960. 00	$35, 980. 00	$18, 460. 00	$2, 800. 00
Eagles	124, 930. 00	20, 110. 00	6, 810. 00	420. 00
Half eagles	273, 465. 00	37, 865. 00	14, 840. 00	885. 00
Three-dollar pieces	165. 00	147. 00	33. 00	18. 00
Quarter eagles	7, 212. 50	2, 462. 50	20. 00	72. 50
Dollars	71. 00	476. 00		20. 00
Total gold, face value	513, 803. 50	97, 040. 50	40, 163. 00	4, 215. 50
SILVER.				
Trade dollars		215. 00		
Standard dollars		1, 381. 00		13. 00
Half dollars	3, 059, 936. 00	682. 50	115, 000. 00	47. 50
Quarter dollars	3, 110, 703. 00	612. 75	44, 300. 00	34. 25
Twenty-cent pieces	349. 00		24. 60	
Dimes	829, 477. 60	370. 60	18, 130. 00	48. 10
Half dimes	1, 705. 00	48. 95	404. 95	10. 15
Three-cent pieces	157. 00	5. 73		. 03
Total silver, face value	7, 002, 327. 60	3, 316. 53	177, 859. 55	153. 03
SUMMARY.	*Standard ozs.*	*Standard ozs.*	*Standard ozs.*	*Standard ozs.*
Gold coin	27, 390. 180	5, 186. 239	2, 124. 760	203. 805
Silver coin	5, 333, 051. 47	2, 663. 11	136, 657. 60	116. 10
Gold, coining value	$509, 584. 74	$96, 376. 53	$39, 530. 41	$3, 791. 72
Silver, subsidiary, coining value	6, 635, 211. 78	3, 313. 35	170, 025. 00	144. 45
Silver, dollar, coining value	6, 205, 732. 61	3, 098. 89	159, 019. 75	135. 10
Loss, gold	$4, 218. 76	$663. 97	$632. 59	$423. 78
Gain, gold				
Loss, silver	367, 115. 82	3. 18	7, 834. 55	8. 58

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

ASSAY OFFICES.							Total.
Denver.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.	
$10,217,422.40	....	....	....	....	....	....	$69, 485, 715. 38
....	....	....	....	....	....	....	13, 996, 083. 60
....	....	....	....	....	....	....	17, 949, 522. 18
9, 948, 876. 74	$1,100,493.37	$2,216,152.88	$252,816.93	$111,218.15	$145,705.58	$5,539,185.25	19, 314, 452. 60
20,166,299.14	1, 100, 493. 37	2, 216, 152. 88	252, 816. 93	111, 218. 15	145, 705. 58	5, 539, 185. 25	120, 745, 773. 76
....	....	....	....	....	....	....	7, 735, 409. 88
....	....	....	....	....	....	....	203, 588. 14
....	....	....	....	....	....	....	5, 828 04
65, 169. 03	20, 587. 71	42, 014. 19	1, 419. 04	995. 86	1, 553. 66	95, 667. 22	237, 810. 95
65, 169. 03	20, 587. 71	42, 014. 19	1, 419. 04	995. 86	1, 553. 66	95, 667. 22	8, 182, 637. 01
20, 231, 468. 17	1, 121, 081. 08	2, 258, 167. 07	254, 235. 97	112, 214. 01	147, 259. 24	5, 634, 852. 47	128, 928, 410. 77

COINS TRANSFERRED FROM THE TREASURY AND PURCHASED OVER THE COUNTER AND LOSS, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

NEW ORLEANS.		NEW YORK.	DENVER.	ST. LOUIS.	TOTAL.		
Received from Treasury.	Purchased.	Purchased.	Purchased.	Purchased.	Received from Treasury.	Purchased.	Received from Treasury and purchased.
....	$900. 00	$174, 920. 00	$20. 00	$20. 00	$126, 420. 00	$214, 640. 00	$341, 060. 00
....	5, 920. 00	264, 760. 00	20. 00	200. 00	131, 740. 00	291, 430. 00	423, 170. 00
....	6, 035. 00	203, 425. 00	30. 00	113. 00	288, 305. 00	248, 353. 00	536, 658. 00
....	....	96. 00	....	....	198. 00	261. 00	459. 00
....	240. 00	18, 617. 50	2. 50	2. 50	7, 232. 50	21, 397. 50	28, 630. 00
....	38. 00	157. 00	1. 00	1. 00	71. 00	693. 00	764. 00
....	13, 133. 00	661, 975. 50	73. 50	336. 50	553, 966. 50	776, 774. 50	1, 330, 741. 00
....	5. 00	....	....	....	....	220. 00	220. 00
....	304. 00	....	....	....	....	1, 698. 00	1, 698. 00
$681, 291. 50	221. 50	....	....	....	3, 856, 227. 50	951. 50	3, 857, 179. 00
547, 355. 25	278. 50	....	....	....	3, 702, 358. 25	925. 50	3, 703, 283. 75
89. 60	. 60	....	....	....	463. 20	. 60	463. 80
115, 932. 00	330. 40	....	....	....	963 539. 60	749. 10	964, 288. 70
194. 60	116. 50	....	....	....	2, 304. 55	175. 60	2, 480. 15
7. 05	....	....	....	....	164. 05	5. 76	169. 81
1, 344, 870. 00	1, 256. 50	....	....	....	8, 525, 057. 15	4, 726. 06	8, 529, 783. 21
Standard ozs.	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Stand. ozs.*	*Standard ozs.*	*Stand. ozs.*	*Standard ozs.*
....	696. 525	35, 263. 610	3. 705	18. 180	29, 514. 940	41, 366. 064	70, 881. 004
1, 011, 375. 80	967. 20	....	....	....	6, 481, 084. 87	3, 746. 41	6, 484, 831. 28
....	$12, 958. 60	$656, 067. 16	$68. 93	$338. 23	$549, 115. 15	$769, 601. 17	$1. 318, 716. 32
$1, 258, 321. 36	1, 203. 36	....	....	....	8, 063, 558. 14	4, 661. 16	8. 068, 219. 30
1, 176, 873. 66	1, 125. 47	....	....	....	7, 541, 626. 02	4, 359. 46	7, 545, 985. 48
....	$174. 40	$5, 908. 34	$4. 57	....	$4, 851. 35	$7, 173. 33	$12, 024. 68
....	....	....	....	$1. 73	....	1. 73	1. 73
$86, 548. 64	53. 14	....	....	....	461, 499. 01	64. 90	461, 563. 91

X.—QUANTITY AND COST OF SILVER USED IN THE COINAGE OF SILVER DOLLARS, NUMBER OF STANDARD SILVER DOLLARS COINED, AND SEIGNIORAGE ON SAME, UNDER ACT OF JULY 14, 1890, DURING THE CALENDAR YEAR 1898.

MINT AT PHILADELPHIA.

Months.	COINED.		Dollars coined.	Seigniorage.
	Standard ounces.	Cost.		
1898.				
January	558,593.75	$455,037.34	650,000	$194,962.66
February	500,349.61	407,590.95	582,225	174,634.05
March	515,689.45	420,086.97	600,075	179,988.03
April	158,125.00	128,810.57	184,000	55,189.43
May	446,875.00	364,029.88	520,000	155,970.12
June	147,898.43	120,476.61	172,100	51 623.39
July	85,937 50	69,992.82	100,000	30,007.18
August	814,687.50	663,531.94	948,000	284,468.06
September	687,564.45	559,894.29	800,075	240,180.71
October	386,718.75	314,910.40	450,000	135,089.60
November	491,562.50	400,286.10	572,000	171,713.90
December	263,192.19	214,321.02	306,260	91,938.98
Total	5,057,194.13	4,118,968.89	5,884,735	1,765,766.11

MINT AT SAN FRANCISCO.

1898.				
January	515,625.00	$415,536.57	600,000	$184,463.43
February	386,718.75	311,652.43	450,000	138,347.57
March	429,687.50	346,280.47	500,000	153,719.53
April	429,687.50	346,280.47	500,000	153,719.53
May	237,187.50	191,146.82	276,000	84,853.18
June	37,812.50	29,297.43	44,000	14,702.57
July	....	....	....	....
August	....	....	....	....
September	....	....	....	....
October	474,375.00	373,752.03	552,000	178,247.97
November	326,562.50	261.486.90	380,000	118,513.10
December	687,500.00	552,680.46	800,000	247,319.54
Total	3,525,156.25	2,828,113.58	4,102,000	1,273,886.42

MINT AT NEW ORLEANS.

1898.				
January	....	....	....	....
February	....	....	....	....
March	....	....	....	....
April	....	....	....	....
May	429,687.50	$345,166.32	500,000	$154,833.68
June	515,625.00	417,053.60	600,000	182,946.40
July	180,468.75	145,968.76	210,000	64,031.24
August	644,531.25	521,317.01	750,000	228,682.99
September	25,781.25	20,927.76	30,000	9,072.24
October	859,375.00	697,592.04	1,000,000	302,407.96
November	386,718.75	313,916.41	450,000	136,083.59
December	773,437.50	628,896.75	900,000	271,103.25
Total	3,815,625.00	3,090,838.65	4,440,000	1,349,161.35

SUMMARY.

1898.				
January	1,074,218.75	$870,573.91	1,250,000	$379,426.09
February	887,068.36	719.243.38	1,032,225	312,981.62
March	945,376.95	766,367.44	1,100,075	333,707.56
April	587,812.50	475 091.04	684,000	208,908.96
May	1,113,750.00	900,343.02	1,296,000	395,656.98
June	701,335.93	566,827.64	816,100	249,272.36
July	266,406.25	215,961.58	310,000	94,038.42
August	1,459,218.75	1,184,848.95	1,698,000	513,151.05
September	713,345.70	580,822.05	830,075	249,252.95
October	1,720,468.75	1,386,254.47	2.002,000	615,745.53
November	1,204,843.75	975,689.41	1,402,000	426,310.59
December	1,724,129.69	1,395.898.23	2,006,260	610,361.77
Total	12,397,975.38	10,037,921.12	14,426,735	4,388,813.88

XI.—QUANTITY AND COST OF METAL OBTAINED BY TRANSFER AND PURCHASE FOR SUBSIDIARY SILVER COINAGE AND COINAGE DERIVED THEREFROM DURING THE CALENDAR YEAR 1898.

Sources from which bullion was obtained.	Fine ounces.	Cost.	Coinage.
MINT AT PHILADELPHIA.			
Worn and uncurrent coins	4,799,746.32	$6,635,211.78	$5,885,000.00
Partings, charges, and fractions purchased	187,825.35	104,347.44	624.75
Melted assay coins purchased	956.31	1,257.73	
Mutilated coins purchased	1,417.45	787.48	
Surplus bullion purchased	408.11	256.35	
Total	4,990,353.54	6,741,860.78	5,885,624.75
MINT AT SAN FRANCISCO.			
Worn and uncurrent coins	662,991.84	916,525.78	1,021,673.70
Partings, charges, and fractions purchased	98,053.71	54,474.33	583,000.00
Amount transferred from mint at Philadelphia	270,000.00	170,123.62	
Mutilated coins purchased	104.49	58.05	
Surplus bullion purchased	5,054.25	3,163.74	
Total	1,036;204.29	1,144,345.52	1,604,673.70
MINT AT NEW ORLEANS.			
Worn and uncurrent coins	910,238.22	1,258,321.36	1,117,000.00
Partings, charges, and fractions purchased	4,793.75	2,663.16	....
Mutilated coins purchased	368.73	204.85	
Total	915,400.70	1,261,189.37	1,117,000.00
MINT AT CARSON.			
Partings, charges, and fractions purchased	1,581.41	878.56	....
Surplus bullion purchased	95.53	55.69	
Total	1,676.94	934.25	....
SUMMARY.			
Worn and uncurrent coins	6,372,976.38	8,810,058.92	8,023,673.70
Partings, charges, and fractions purchased	292,254.22	162,363.49	583,624.75
Amount transferred from mint at Philadelphia to mint at San Francisco	270,000.00	170,123.62	
Melted assay coins purchased	956.31	1,257.73	
Mutilated coins purchased	1,890.67	1,050.38	
Surplus bullion purchased	5,557.89	3,475.78	
Total	6,943,635.47	9,148,329.92	8,607,298.45

XII.—Silver for Subsidiary Coinage, Calendar Year 1898.

Stock.	Fine ounces.	Cost.
MINT AT PHILADELPHIA.		
Silver bullion on hand January 1, 1898	954, 076. 68	$1, 103, 268. 14
Uncurrent coins transferred from Treasury	4, 799, 746. 32	6, 635, 211. 78
Partings, charges, and fractions purchased	187, 825. 35	104, 347. 44
Melted assay coins purchased	956. 31	1, 257. 73
Mutilated coins purchased	1, 417. 45	787. 48
Surplus bullion purchased	408. 11	256. 35
Total	5, 944, 430. 22	7, 845, 128. 92
Used in coinage, calendar year 1898	4, 257, 513. 81	5, 885, 275. 69
Amount transferred to San Francisco mint	810, 000. 00	916, 624. 40
Sold in sweeps	5, 070. 03	3, 138. 20
Wasted by operative officers	3, 108. 47	1, 978. 71
Balance on hand January 1, 1899	868, 737. 91	1, 038, 111. 92
Total	5, 944, 430. 22	7, 845, 128. 92
MINT AT SAN FRANCISCO.		
Silver bullion on hand January 1, 1898	131, 340. 37	139, 651. 88
Uncurrent coins transferred from Treasury	662, 991. 84	916, 525. 78
Partings, charges, and fractions purchased	98, 053. 71	54, 474. 33
Amount transferred from mint at Philadelphia	270, 000. 00	170, 123. 62
Mutilated coins purchased	104. 49	58. 05
Surplus bullion purchased	5, 054. 25	3, 163. 74
Total	1, 167, 544. 66	1, 283, 997. 40
Used in coinage, calendar year 1898	1, 160, 780. 85	1, 279, 885. 77
Transferred to silver-purchase bullion	. 05	. 08
Sold in sweeps	3, 005. 45	1, 852. 84
Wasted by operative officers	2, 295. 66	1, 432. 45
Balance on hand January 1, 1899	1, 462. 65	826. 26
Total	1, 167, 544. 66	1, 283, 997. 40
MINT AT NEW ORLEANS.		
Silver bullion on hand January 1, 1898	6, 259. 37	7, 708. 05
Uncurrent coins transferred from Treasury	910, 238. 22	1, 258, 321. 36
Partings, charges, and fractions purchased	4, 793. 75	2, 663. 16
Mutilated coins purchased	368. 73	204. 85
Total	921, 660. 07	1, 268, 897. 42
Used in coinage, calendar year 1898	808, 009. 87	1, 117, 000. 00
Sold in sweeps	4, 012. 13	2, 209. 95
Balance on hand January 1, 1899	109, 638. 07	149, 687. 47
Total	921, 660. 07	1, 268, 897. 42
MINT AT CARSON.		
Silver bullion on hand January 1, 1898	6, 864. 46	4, 212. 63
Partings, charges, and fractions purchased	1, 581. 41	878. 56
Surplus bullion purchased	95. 53	55. 69
Total	8, 541. 40	5, 146. 88
Transferred to act July 14, 1890	42. 46	33. 99
Wasted by operative officers	63. 63	38. 69
Balance on hand January 1, 1899	8, 435. 31	5, 074. 29
Total	8, 541. 40	5, 146. 88

XII.—SILVER FOR SUBSIDIARY COINAGE, CALENDAR YEAR 1898—Continued.

Stock.	Fine ounces.	Cost.
SUMMARY.		
Silver bullion on hand January 1, 1898	1,098,540.88	$1,254,840.70
Uncurrent coins transferred from Treasury	6,372,976.38	8,810,058.92
Partings, charges, and fractions purchased	292,254.22	162,363.49
Amount transferred from mint at Philadelphia to mint at San Francisco	270,000.00	170,123.62
Melted assay coins purchased	956.31	1,257.73
Mutilated coins purchased	1,890.67	1,050.38
Surplus bullion purchased	5,557.89	3,475.78
Total	8,042,176.35	10,403,170.62
Used in coinage, calendar year 1898	6,226,304.53	8,282,161.46
Amount transferred from mint at Philadelphia to mint at San Francisco	810,000.00	916,624.40
Transferred to silver-purchase bullion	.05	.08
Transferred to act July 14, 1890	42.46	33.99
Sold in sweeps	12,087.61	7,200.99
Wasted by operative officers	5,467.76	3,449.85
Balance on hand January 1, 1899	988,273.94	1,193,699.85
Total	8,042,176.35	10,403,170.62

XIII.—Coinage Executed at the Mints of the United States

Denominations.	PHILADELPHIA.	
	Pieces.	Value.
GOLD.		
Double eagles	170, 470	$3, 409, 400. 00
Eagles	812, 197	8, 121, 970. 00
Half eagles	633, 495	3, 167, 475. 00
Quarter eagles	24, 165	60, 412. 50
Total gold	1, 640, 327	14, 759, 257. 50
SILVER.		
Dollars, act of July 14, 1890	5, 884, 735	5, 884, 735. 00
Subsidiary:		
Half dollars	2, 956, 735	1, 478, 367. 50
Quarter dollars	11, 100, 735	2, 775, 183. 75
Dimes	16, 320, 735	1, 632, 073. 50
Total subsidiary	30, 378, 205	5, 885, 624. 75
Total silver	36, 262, 940	11, 770, 359. 75
MINOR.		
Five-cent nickel	12, 532, 087	626, 604, 35
One-cent bronze	49, 823, 079	498, 230. 79
Total minor	62, 355, 166	1, 124, 835. 14
Total coinage	100, 258, 433	27, 654, 452. 39

The mint at Philadelphia coined in addition to the above the following for the Government of Santo Domingo (Dominican Republic):

	Pieces.
Pesos (silver)	911, 988
Medio pesos	605, 640
Twenty centavos	1, 001, 469
Total	2, 519, 097

The blanks for the above coinage being furnished ready for striking.

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

SAN FRANCISCO.		NEW ORLEANS.		TOTAL.	
Pieces.	Value.	Pieces.	Value.	Pieces.	Value.
2, 575, 175	$51, 503, 500. 00	....	....	2, 745, 645	$54, 912, 900. 00
473, 600	4, 736, 000. 00	....	....	1, 285, 797	12, 857, 970. 00
1, 397, 400	6, 987, 000. 00	....	....	2, 030, 895	10, 154, 475. 00
....	....	....	....	24, 165	60, 412. 50
4, 446, 175	63, 226, 500. 00	....	....	6, 086, 502	77, 985, 757. 50
4, 102, 000	4, 102, 000. 00	4, 440, 000	$4, 440, 000. 00	14, 426, 735	14, 426, 735. 00
2, 358, 550	1, 179, 275. 00	874, 000	437, 000. 00	6, 189, 285	3, 094, 642. 50
1, 020, 592	255, 148. 00	1, 868, 000	467, 000. 00	13, 989, 327	3, 497, 331. 75
1, 702, 507	170, 250. 70	2, 130, 000	213, 000. 00	20, 153, 242	2, 015, 324. 20
5, 081, 649	1, 604, 673. 70	4, 872, 000	1, 117, 000. 00	40, 331, 854	8, 607, 298. 45
9, 183, 649	5, 706, 673. 70	9, 312, 000	5, 557, 000. 00	54, 758, 589	23, 034, 033. 45
....	....	....	....	12, 532, 087	626, 604. 35
....	....	....	....	49, 823, 079	498, 230. 79
....	....	....	....	62, 355, 166	1, 124, 835. 14
13, 629, 824	68, 933, 173. 70	9, 312, 000	5, 557, 000. 00	123, 200, 257	102, 144, 626. 09

Coinage of silver dollars:		
Bland-Allison Act of February 28, 1878		$378, 166, 793
Sherman Act of July 14, 1890, to October 31, 1893	$36, 087, 285	
From repeal of the purchasing clause of the Sherman Act, November 1, 1893, to December 31, 1898	50, 912, 307	
		86, 999, 592
Act of March 3, 1891, recoinage of trade dollars		5, 078, 472
Total		470, 244, 857

XIV.—ASSETS AND LIABILITIES OF THE UNITED STATES

ASSETS.

Institutions.	Gold bullion.		Silver bullion.		Value of bullion shipped for coinage.
	Standard ounces.	Value.	Standard ounces.	Value (cost).	
COINAGE MINTS.					
Philadelphia	3,236,539,542	$60,214,689.07	111,450,562.96	$91,007,807.95	....
San Francisco	184,177,539	3,426,558.78	447,047.99	358,901.16	....
New Orleans	36,616,597	681,239.15	1,840,316.00	1,547,029.21	....
Carson	1,218,243	22,664.99	20,691.10	13,229.39	$93,247.54
ASSAY OFFICES.					
New York	4,039,934,978	75,161,581.09	761,890.65	635,416.24	....
Denver	23,196,758	431,567.59	1,249.78	624.89	685,229.79
Helena	2,646,624	49,239.52	1,039.64	519.82	....
Boise	489,465	9,106.33	170.44	85.22	55,779.98
Charlotte	154,620	2,876.66	33.68	16.84	....
St. Louis	349,503	6,506.37	57.33	28.61	....
Deadwood	560,238	10,423.04	59.12	29.52	14,470.37
Seattle	1,774,114	33,006.77	544.50	272.25	51,021.69
Total	7,527,658,221	140,049,459.36	114,523,663.19	93,563,961.10	899,749.37

LIABILITIES.

Institutions.	Bullion fund.	Undeposited earnings.
COINAGE MINTS.		
Philadelphia	$230,190,167.34	....
San Francisco	62,099,335.74	....
New Orleans	6,339,749.91	....
Carson	5,303,892.55	$405.00
ASSAY OFFICES.		
New York	78,048,135.69	38,840.42
Denver	1,491,151.41	2,923.77
Helena	235,640.75	1,388.93
Boise	167,653.03	681.21
Charlotte	22,454.07	155.51
St. Louis	29,555.57	93.09
Deadwood	103,905.81	127.79
Seattle	324,610.32	2,599.35
Total	384.356,252.19	47,215.07

MINTS AND ASSAY OFFICES, DECEMBER 31, 1898.

ASSETS.

Gold coin.	Silver coin.	Credit balance with assistant treasurer and depository banks.	Minor coin.	Minor coinage metal.	Deficiencies.	Total.
$9,465,222.50	$69,905,896.56		$296,342.44	$41,903.01	$13,543.82	$230,945,405.35
8,305,820.00	50,022,346.40				413,557.96	62,527,184.30
16,220.00	4,477,422.18				25,000.00	6,746,910.54
5,448.38	5,024,287.95	*a* $69,869.55			75,549.75	5,304,297.55
6,685.00	3,027.32	*b*2,302,168.93				78,108,878.58
		376,652.91				1,494,075.18
		187,270.34				237,029.68
		103,362.71				168,334.24
		19,716.08				22,609.58
		23,113.68				29,648.66
		79,110.67				104,033.60
		244,473.09				328,773.80
17,799,395.88	129,432,980.41	3,405,737.96	296,342.44	41,903.01	527,651.53	386,017,181.06

a Gold coin.

b Gold coin, $2,293,471.73; silver coin, $8,697.20.

LIABILITIES.

Seigniorage on silver.	Unpaid depositors.	Minor coinage profits.	Minor coin metal fund.	Unpaid cent depositors and subtreasury transfers.	Total.
$92,184.86	$324,807.70	$199,913.20	$50,000.00	$88,332.25	$230,945,405.35
320,159.38	107,689.18				62,527,184.30
407,086.84	73.79				6,746,910.54
					5,304,297.55
	21,902.47				78,108,878.58
					1,494,075.18
					237,029.68
					168,334.24
					22,609.58
					29,648.66
					104,033.60
	1,564.13				328,773.80
819,431.08	456,037.27	199,913.20	50,000.00	88,332.25	386,017,181.06

XV.—UNREFINED GOLD AND SILVER OF DOMESTIC PRODUCTION, BY VALUE, ITS DISTRIBUTION, BY STATES AND TERRITORIES; ALSO REFINED DOMESTIC BULLION (NOT DISTRIBUTED) DEPOSITED AT THE MINTS AND ASSAY OFFICES FROM THEIR ORGANIZATION TO THE CLOSE OF THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

Locality.	Gold.	Silver.	Total.
Alabama	$265, 607. 40	$538. 22	$266, 145. 62
Alaska	2, 966, 247. 17	34, 578. 86	3, 000, 826. 03
Arizona	9, 650, 689. 92	14, 132, 579. 06	23, 783, 268. 98
California	779, 494, 097. 35	4, 425, 600. 57	783, 919, 697. 92
Connecticut	125. 82		125. 82
Colorado	78, 506, 768. 98	25, 052, 756. 18	103, 559, 525. 16
Georgia	9, 738, 394. 35	9, 511. 52	9, 747, 905. 87
Idaho	39, 223, 449. 12	2, 036, 807. 95	41, 260, 257. 07
Iowa	1, 318. 17	8. 03	1, 326. 20
Maine	32, 118. 15	3, 075. 52	35, 193. 67
Maryland	18, 599. 31	42. 66	18, 641. 97
Michigan	502, 053. 85	4, 215, 217. 23	4, 717, 271. 08
Minnesota	9, 048. 14	116. 27	9, 164. 41
Missouri	96. 71	359. 11	455. 82
Montana	81, 050, 765. 50	22, 315, 935. 12	103, 366, 700. 62
Nebraska	2, 340. 26	273, 226. 13	275, 566. 39
Nevada	41, 015, 302. 94	105, 430, 622. 92	146, 445, 925. 86
New Hampshire	481. 34	1. 75	483. 09
New Mexico	6, 769, 132. 59	7, 159, 272. 95	13, 928, 405. 54
New York	1, 058. 83	. 62	1, 059. 45
North Carolina	11, 988, 978. 57	68, 807. 52	12, 057, 786. 09
Oregon	24, 660, 526. 40	130, 872. 90	24, 791, 399. 30
South Carolina	2, 616, 460. 93	5, 543. 54	2, 622, 004. 47
South Dakota	67, 121, 897. 09	1, 243, 133. 20	68, 365, 030. 29
Tennessee	92, 371. 62	17. 63	92, 389. 25
Texas	10, 566. 56	3, 461. 77	14, 028. 33
Utah	2, 326, 068. 78	19, 951, 428. 39	22, 277, 497. 17
Vermont	79, 791. 87	93. 68	79, 885. 55
Virginia	1, 775, 384. 28	493. 09	1, 775, 877. 37
Washington	1, 571, 539. 12	22, 731. 35	1, 594, 270. 47
West Virginia	243. 74	3. 72	247. 46
Wisconsin	1, 109. 77	38. 54	1, 148. 31
Wyoming	905, 098. 39	13, 561. 65	918, 660. 04
Other sources	42, 184, 989. 85	42, 962, 425. 00	85, 147, 414. 85
Unrefined	1, 204, 582, 722. 87	249, 492, 862. 65	1, 454, 075, 585. 52
Refined	629, 420, 999. 00	550, 327, 872. 39	1, 179, 748, 871. 39
Total	1, 834, 003, 721. 87	799, 820, 735. 04	2, 633, 824, 456. 91

XVI.—PRODUCT OF GOLD AND SILVER IN THE UNITED STATES FROM 1792 TO 1844, AND ANNUALLY SINCE.

[The estimate for 1792-1873 is by R. W. Raymond, commissioner, and since by Director of the Mint.]

Year.	Gold.	Silver.	Total.
April 2, 1792-July 31, 1834	$14,000,000	Insignificant.	$14,000.000
July 31, 1834-December 31, 1844	7,500,000	$250,000	7,750,000
1845	1,008,000	50,000	1,058,000
1846	1,140,000	50,000	1,190,000
1847	889,000	50,000	939,000
1848	10,000,000	50,000	10,050,000
1849	40,000,000	50,000	40,050,000
1850	50,000,000	50,000	50,050,000
1851	55,000,000	50,000	55,050,000
1852	60,000,000	50,000	60,050,000
1853	65,000,000	50,000	65,050.000
1854	60,000,000	50,000	60 050,000
1855	55,000,000	50,000	55,050,000
1856	55,000,000	50,000	55,050,000
1857	55,000,000	50,000	55,050,000
1858	50,000,000	500,000	50,500.000
1859	50,000,000	100,000	50,100.000
1860	46,000,000	150.000	46.150,000
1861	43,000,000	2,000,000	45,000,000
1862	39,200,000	4,500,000	43,700,000
1863	40,000,000	8,500,000	48,500,000
1864	46,100,000	11,000,000	57,100.000
1865	53,225,000	11,250.000	64,475,000
1866	53,500,000	10,000,000	63,500,000
1867	51,725,000	13,500,000	65.225,000
1868	48,000,000	12,000,000	60,000,000
1869	49,500,000	12,000,000	61,500,000
1870	50,000,000	16,000,000	66.000,000
1871	43,500,000	23,000,000	66,500,000
1872	36,000,000	28,750,000	64,750,000
1873	36,000,000	35,750,000	71,750.000
1874	33,500,000	37,300,000	70,800,000
1875	33.400,000	31,700,000	65.100,000
1876	39,900,000	38,800,000	78,700,000
1877	46,900,000	39,800,000	86,700,000
1878	51,200,000	45,200,000	96,400,000
1879	38,900,000	40,800,000	79,700.000
1880	36,000,000	39,200.000	75,200 000
1881	34,700,000	43.000,000	77,700.000
1882	32,500,000	46.800,000	79,300 000
1883	30.000,000	46,200,000	76.200,000
1884	30,800,000	48,800,000	79,600,000
1885	31,800,000	51,600,000	83,400,000
1886	35,000,000	51,000,000	86.000,000
1887	33,000,000	53,350,000	86.350,000
1888	33,175,000	59,195,000	92,370.000
1889	32,800,000	64,646,000	97,446 000
1890	32,845,000	70,465,000	103,310.000
1891	33,175,000	75,417,000	108,592.000
1892	33,000,000	82,101,000	115,101,000
1893	35,955,000	77,576,000	113,531,000
1894	39,500,000	64,000,000	103,500,000
1895	46,610,000	72,051,000	118,661.000
1896	53,088,000	76,069,000	129,157,000
1897	57,363,000	69,637,000	127,000,000
1898	64,463,000	70,384,000	134,847,000
Total	2,234,861,000	1,584,991,000	3,819,852,000

XVII.—PRECIOUS-METAL PRODUCT, UNITED STATES AND MEXICO.

WELLS, FARGO & CO.,
San Francisco, December 31, 1898.

DEAR SIR: The following is our annual report of precious metals produced in the States and Territories west of the Missouri River (including British Columbia and Northwest Territory) during 1898, which shows in the aggregate: Gold, $78,461,202; silver, $39,016,565; copper, $46,200,648; lead, $13,344,251; total gross result, $177,022,666. The commercial value at which the several metals named herein have been estimated is: Silver, 58 cents per ounce; copper, 12 cents per pound, and lead $3.65 per hundredweight.

Allowance must always be made for probable variations from reported figures by reason of constantly increasing facilities for transporting bullion, ores, and base metals from the mines outside of the express and the difficulty of getting entirely reliable data from private sources. Estimates obtained in this way are liable to be exaggerated and are, to a considerable degree, guesswork; but with some modifications on this account, made herein, the general results reached, while only approximately correct, may be accepted as the closest approximation possible under the circumstances.

States and Territories.	Gold dust and bullion by express.	Gold dust and bullion by other conveyances.	Silver bullion by express.	Ores and base bullion by freight.	Total.
California	$12, 486, 968	$2, 915, 685	$64, 443	$2, 639, 255	$18, 106. 351
Nevada	1, 599, 626	1, 200, 159	605, 589	190, 168	3, 595, 542
Oregon	1, 542, 342	630, 027	38, 735	4, 015	2, 215, 119
Washington	209, 531	111, 063	52, 002	85, 000	457, 596
Alaska		3, 253, 991		67, 500	3, 321, 491
Idaho	2, 487, 000		3, 723, 665	5, 437, 600	11, 648, 265
Montana	4, 630, 080		9, 425, 000	29, 843, 060	43, 898. 080
Utah	1, 205, 660	962, 622	101, 323	8, 212, 283	10, 481, 888
Colorado	23, 177, 262		14, 456, 559	3, 682, 823	41, 316. 644
New Mexico	161, 416	143, 450	75, 235	1, 324, 765	1, 704, 866
Arizona	1, 689, 978	1, 477, 647	686, 757	11, 721, 447	15, 575, 829
Dakota	6, 575, 220		95, 000	34, 200	6, 704, 420
Texas	5, 250		275, 850		281, 100
Wyoming	21, 225		26, 750	4, 300	52, 275
British Columbia and Northwest Territory	11, 975, 000		3, 935, 200	1, 753, 000	17, 663, 200
Total	67, 766, 558	10, 694, 644	33, 562, 108	64, 999, 356	177, 022, 666

The gross yield for 1898, shown above, segregated, is approximately as follows:

Metal.	Per cent of total.	Total value.
Gold	$44\frac{32}{100}$	$78, 461, 202
Silver	$22\frac{4}{100}$	39, 016, 565
Copper	$26\frac{10}{100}$	46, 200 648
Lead	$7\frac{54}{100}$	13, 344,251
Total		177, 022, 666

The year's combined product of the metals herein treated of is the greatest in the history of the countries—United States of America and British Columbia and Northwest Territory, that of gold, $78,461,202, being above any previous record officially reported; and the world's output of gold for 1898—approximately $280,000,000—is amazing. The most notable increases have been in South Africa, $25,000,000; the British Possessions of the Northwest, $6,000,000; Australasia, $6,000,000, and the United States of America, $3,000,000.

ANNUAL PRODUCT OF LEAD, COPPER, SILVER, AND GOLD IN THE STATES AND TERRITORIES WEST OF THE MISSOURI RIVER, INCLUDING BRITISH COLUMBIA AND NORTHWEST TERRITORY, 1870-1898.

Year.	Product as per Wells, Fargo & Co.'s statements, including amounts from British Columbia and west coast of Mexico.	Product after deducting amounts from British Columbia and west coast of Mexico.
1870	$54,000,000	$52,150 000
1871	58,284,000	55,784,000
1872	62,236,959	60,351,824
1873	72,258,693	70,139.860
1874	74,401.045	71,965 610
1875	80,889.057	76.703,433
1876	90,875,173	87,219,859
1877	98,421,754	95.811.582
1878	81,154,622	78.276,167
1879	75,349,501	72,688,888
1880	80,167,936	77.232,512
1881	84,504,417	81,198,474
1882	92,411,835	89.207,549
1883	90,313,612	84 639.212
1884	84,975,954	81,633,835
1885	90,181,260	87.311.382
1886	103,011,761	100.160,222
1887	104,645,959	103,327,770
1888	114,341,592	112,665,569
1889	127,677,836	126,723,384
1890	127,166,410	126,804,855
1891	118,237,441	117,946,565
1892	111,531,700	111,259,508
1893	104,081,591	103,827,623
1894	105,113,489	104,844,112
1895	118,164,642	117,896.988
1896	126,289,536	121,949,536
1897	153,435,469	142,853,469
1898	177,022,666	159,359,466

NET PRODUCT OF THE STATES AND TERRITORIES WEST OF THE MISSOURI RIVER, EXCLUSIVE OF BRITISH COLUMBIA AND WEST COAST OF MEXICO, 1870-1898.

Year.	Lead.	Copper.	Silver.	Gold.
1870	$1,080,000	....	$17,320,000	$33,750,000
1871	2,100,000	....	19,286,000	34,398,000
1872	2,250,000	....	19,924,429	38 177,395
1873	3,450,000	....	27,483,302	39.206,558
1874	3,800,000	....	29,699,122	38,466,488
1875	5,100,000	....	31,635,239	39,968,194
1876	5,040,000	....	39,292,924	42,886.935
1877	5,085,250	....	45,846,109	44,880.223
1878	3,452,000	....	37,248,137	37,576.030
1879	4,185,769	....	37.032,857	31,470,262
1880	5,742,390	$898,000	38,033,055	32,559,067
1881	6,361,902	1,195,000	42,987.613	30,653,959
1882	8,008,155	4,055,037	48.133.039	29,011,318
1883	8,163,550	5,683,921	42,975,101	27,816,640
1884	6,834,091	6.086,252	43,529,925	25,183,567
1885	8,562,991	7,838.036	44,516,599	26,393,756
1886	9,185,192	9,276,755	52,136,851	29,561,424
1887	9,631,073	10.362,746	50,833,884	32.500,067
1888	11,263,630	18,261,490	53,152.747	29,987,702
1889	14,593,323	14,793,763	64,808,637	32,527 661
1890	11,509,571	20,569.092	62,930.831	31,795,361
1891	12,385,780	13,261,663	60,614,004	31,685,118
1892	11,433,947	19,370,516	50,607,601	29,847,444
1893	7,756,040	23,631,339	38,491,521	33,948,723
1894	8,223,513	22,276,294	28,721,014	45,623.291
1895	7,170,367	27,052,115	35,274,777	48,399,729
1896	6,536,026	28,713,305	33,684,963	53,015,242
1897	8,775,144	36,388,694	34,034,034	63,655,597
1898	11,894,251	45,897,648	35,081,365	66,486,202

The exports of silver during the past year to Japan, China, the Straits, etc., have been as follows: From London, $27,404,623; from San Francisco, $5,217,409; total, $32,622,032, as against $48,412,009 last year. Pound sterling estimated at $4.8665.

STATEMENT OF THE PRODUCT OF GOLD AND SILVER IN THE REPUBLIC OF MEXICO, REVISED AND CORRECTED, FROM 1877 TO 1898—VALUES UPON MINTAGE BASIS.

Years.	Gold.	Silver.	Total.
1877-1878	$747,000	$24,837,000	$25,584,000
1878-1879	881,000	25,125,000	26,006,000
1879-1880	942,000	26,800,000	27,742,000
1880-1881	1,013,000	29,234,000	30,247,000
1881-1882	937,000	29,329,000	30,266,000
1882-1883	956,000	29,569,000	30,525,000
1883-1884	1,055,000	31,695,000	32,750,000
1884-1885	914,000	33,226,000	34,140,000
1885-1886	1,026,000	34,112,000	35,138,000
1886-1887	1,047,000	34,600,000	35,647,000
1887-1888	1,031,000	34,912,000	35,943,000
1888-1889	1,040,000	40,706,000	41,746,000
1889-1890	1,100,000	41,500,000	42,600,000
1890-1891	1,150,000	43,000,000	44,150,000
1891-1892	1,275,000	45,750,000	47,025,000
1892-1893	1,400,000	48,500,000	49,900,000
1893-1894	1,425,000	47,250,000	48,675,000
1894-1895	4,750,000	54,225,000	58,975,000
1895-1896	5,475,000	54,450,000	59,925,000
1896-1897	8,500,000	60,683,000	69,183,000
1897-1898	9,925,000	67,525,000	77,450,000
Total	46,589,000	837,028,000	883,617,000

EXHIBIT OF COINAGE OF GOLD, SILVER, AND COPPER, IN THE REPUBLIC OF MEXICO, FROM THE 1ST OF JULY, 1873, TO THE 30TH OF JUNE, 1898.

Years.	Gold dollars.	Silver dollars.	Copper dollars.
1873-1874	$866,743	$18,846,067	$15,966
1874-1875	862,619	19,386,958	21,712
1875-1876	809,401	19,454,054	30,654
1876-1877	695,750	21,415,128	9,035
1877-1878	691,998	22,084,203	41,364
1878-1879	658,206	22,162,987	16,300
1879-1880	521,826	24,018,528	14,035
1880-1881	492,068	24,617,395	42,258
1881-1882	452,590	25,146,260	11,972
1882-1883	407,600	24,083,921	....
1883-1884	328,698	25,377,379	....
1884-1885	423,250	25,840,728	....
1885-1886	425,000	25,850,000	....
1886-1887	410,000	25,600,000	....
1887-1888	340,320	26,711,000	....
1888-1889	305,100	25,274,500	....
1889-1890	243,298	24,328,326	....
1890-1891	308,000	24,238,000	....
1891-1892	291,940	25,527,000	....
1892-1893	361,672	27,169,876	....
1893-1894	553,978	30,185,611	....
1894-1895	545,237	27,628,981	....
1895-1896	565,786	22,634,788	....
1896-1897	453,474	19,296,009	....
1897-1898	459,219	21,427,057	....
Total	12,473,773	598,304,756	203,296

SUMMARY.—Totals: Gold, $12,473,773; silver, $598,304,756; copper, $203,296; grand total, $610,981,825.

EXHIBIT OF THE COINAGE OF MEXICO FROM THE ESTABLISHMENT OF THE MINTS IN 1537 TO THE END OF THE FISCAL YEAR OF 1898.

	Gold.	Silver.	Copper.	Total.
COLONIAL EPOCH.				
Unmilled coin, from 1537 to 1731	\$8,497,950	\$752,067,456	\$200,000	\$760,765,406
Pillar coin, 1732 to 1771	19,889,014	441,629,211	....	461,518,225
Bust coin, from 1772 to 1821	40,391,447	888,563,989	342,893	929,298,329
	68,778,411	2,082,260,656	542,893	2,151,581,960
INDEPENDENCE.				
Iturbide's imperial bust, from 1822 to 1823	557,392	18,575,569	....	19,132,961
Republic eagle, 1824 to 30th June, 1873	45,040,628	740,246,485	5,235,177	790,522,290
	45,598,020	758,822,054	5,235,177	809,655,251
REPUBLIC.				
Eagle coin, from 1st July, 1873, to 30th of June, 1898	12,473,773	598,304,756	203,296	610,981,825

SUMMARY.—Colonial epoch, from 1537 to 1821, \$2,151,581,960; Independence, from 1822 to 1873, \$809,655,251; Republic, from 1873 to 1898, \$610,981,825; total, \$3,572,219,036.

JNO. J. VALENTINE,
President.

XVIII.—HIGHEST, LOWEST, AND AVERAGE PRICE OF BAR SILVER IN LONDON, PER OUNCE BRITISH STANDARD (.925), SINCE 1833, AND THE EQUIVALENT IN UNITED STATES GOLD COIN OF AN OUNCE 1,000 FINE, TAKEN AT THE AVERAGE PRICE.

Calendar years.	Highest quotation.	Lowest quotation.	Average quotation.	Value of a fine ounce at average quotation.	Calendar years.	Highest quotation.	Lowest quotation.	Average quotation,	Value of a fine ounce at average quotation.
	d.	*d.*	*d.*	*Dollars.*		*d.*	*d.*	*d.*	*Dollars.*
1833	$59\frac{7}{8}$	$58\frac{3}{4}$	$59\frac{3}{16}$	1.297	1866	$62\frac{1}{4}$	$60\frac{3}{8}$	$61\frac{1}{8}$	1.339
1834	$60\frac{3}{4}$	$59\frac{3}{4}$	$59\frac{15}{16}$	1.313	1867	$61\frac{1}{4}$	$60\frac{3}{8}$	$60\frac{9}{16}$	1.328
1835	60	$59\frac{1}{4}$	$59\frac{11}{16}$	1.308	1868	$61\frac{1}{8}$	$60\frac{1}{8}$	$60\frac{1}{2}$	1.326
1836	$60\frac{3}{8}$	$59\frac{5}{8}$	60	1.315	1869	61	60	$60\frac{7}{16}$	1.325
1837	$60\frac{3}{8}$	59	$59\frac{9}{16}$	1.305	1870	$60\frac{3}{4}$	$60\frac{1}{4}$	$60\frac{9}{16}$	1.328
1838	$60\frac{1}{8}$	$59\frac{1}{2}$	$59\frac{1}{2}$	1.304	1871	61	$60\frac{3}{16}$	$60\frac{1}{2}$	1.326
1839	$60\frac{5}{8}$	60	$60\frac{3}{8}$	1.323	1872	$61\frac{1}{8}$	$59\frac{1}{4}$	$60\frac{5}{16}$	1.322
1840	$60\frac{3}{4}$	$60\frac{1}{8}$	$60\frac{3}{8}$	1.323	1873	$59\frac{15}{16}$	$57\frac{7}{8}$	$59\frac{3}{16}$	1.29769
1841	$60\frac{3}{8}$	$59\frac{3}{4}$	$60\frac{1}{16}$	1.316	1874	$59\frac{1}{2}$	$57\frac{1}{4}$	$58\frac{5}{16}$	1.27883
1842	60	$59\frac{1}{4}$	$59\frac{7}{16}$	1.303	1875	$57\frac{5}{8}$	$55\frac{1}{2}$	$56\frac{11}{16}$	1.24233
1843	$59\frac{5}{8}$	59	$59\frac{3}{16}$	1.297	1876	$58\frac{1}{2}$	$46\frac{3}{4}$	$53\frac{1}{8}$	1.16414
1844	$59\frac{3}{4}$	$59\frac{1}{4}$	$59\frac{1}{2}$	1.304	1877	$58\frac{1}{4}$	$53\frac{1}{4}$	$54\frac{13}{16}$	1.20189
1845	$59\frac{7}{8}$	$58\frac{7}{8}$	$59\frac{1}{4}$	1.298	1878	$55\frac{1}{4}$	$49\frac{1}{2}$	$52\frac{5}{8}$	1.15358
1846	$60\frac{1}{8}$	59	$59\frac{5}{16}$	1.300	1879	$53\frac{3}{4}$	$48\frac{7}{8}$	$51\frac{1}{4}$	1.12392
1847	$60\frac{3}{8}$	$58\frac{7}{8}$	$59\frac{11}{16}$	1.308	1880	$52\frac{13}{16}$	$51\frac{1}{2}$	$52\frac{1}{4}$	1.14507
1848	60	$58\frac{1}{2}$	$59\frac{1}{2}$	1.304	1881	$52\frac{7}{8}$	$50\frac{7}{8}$	$51\frac{5}{8}$	1.13229
1849	60	$59\frac{1}{2}$	$59\frac{3}{4}$	1.309	1882	$52\frac{3}{8}$	50	$51\frac{13}{16}$	1.13562
1850	$61\frac{1}{2}$	$59\frac{1}{2}$	$61\frac{1}{16}$	1.316	1883	$51\frac{3}{16}$	$50\frac{1}{16}$	$50\frac{9}{16}$	1.10874
1851	$61\frac{5}{8}$	60	61	1.337	1884	$51\frac{3}{8}$	$49\frac{1}{2}$	$50\frac{11}{16}$	1.11068
1852	$61\frac{7}{8}$	$59\frac{7}{8}$	$60\frac{1}{2}$	1.326	1885	50	$46\frac{7}{8}$	$48\frac{9}{16}$	1.06510
1853	$61\frac{7}{8}$	$60\frac{5}{8}$	$61\frac{1}{2}$	1.348	1886	47	42	$45\frac{3}{8}$	.99467
1854	$61\frac{7}{8}$	$60\frac{7}{8}$	$61\frac{1}{2}$	1.348	1887	$47\frac{1}{8}$	$43\frac{1}{4}$	$44\frac{11}{16}$	.97946
1855	$61\frac{5}{8}$	60	$61\frac{5}{16}$	1.344	1888	$44\frac{9}{16}$	$41\frac{5}{8}$	$42\frac{7}{8}$	.93974
1856	$62\frac{1}{4}$	$60\frac{1}{2}$	$61\frac{5}{16}$	1.344	1889	$44\frac{3}{8}$	$41\frac{15}{16}$	$42\frac{11}{16}$	.93511
1857	$62\frac{3}{8}$	61	$61\frac{3}{4}$	1.353	1890	$54\frac{5}{8}$	$43\frac{5}{8}$	$47\frac{3}{4}$	1.04634
1858	$61\frac{7}{8}$	$60\frac{3}{4}$	$61\frac{5}{16}$	1.344	1891	$48\frac{3}{4}$	$43\frac{1}{2}$	$45\frac{1}{16}$	.98800
1859	$62\frac{3}{4}$	$61\frac{3}{4}$	$62\frac{1}{16}$	1.360	1892	$43\frac{3}{4}$	$37\frac{7}{8}$	$39\frac{3}{4}$	.87145
1860	$62\frac{3}{8}$	$61\frac{1}{4}$	$61\frac{11}{16}$	1.352	1893	$38\frac{3}{4}$	$30\frac{1}{2}$	$35\frac{9}{16}$	.78030
1861	$61\frac{3}{8}$	$60\frac{1}{8}$	$60\frac{13}{16}$	1.333	1894	$31\frac{3}{4}$	27	$28\frac{15}{16}$	.63479
1862	$62\frac{1}{8}$	61	$61\frac{7}{16}$	1.346	1895	$31\frac{3}{8}$	$27\frac{3}{16}$	$29\frac{13}{16}$	.65406
1863	$61\frac{3}{4}$	61	$61\frac{3}{8}$	1.345	1896	$31\frac{15}{16}$	$29\frac{3}{4}$	$30\frac{13}{16}$	.67565
1864	$62\frac{1}{2}$	$60\frac{5}{8}$	$61\frac{3}{8}$	1.345	1897	$29\frac{13}{16}$	$23\frac{5}{8}$	$27\frac{9}{16}$	.60438
1865	$61\frac{5}{8}$	$60\frac{1}{2}$	$61\frac{1}{16}$	1.338	1898	$28\frac{3}{8}$	25	$26\frac{15}{16}$	.59010

XIX.—COMMERCIAL RATIO OF SILVER TO GOLD EACH YEAR SINCE 1687.

[NOTE.—From 1687 to 1832 the ratios are taken from Dr. A. Soetbeer; from 1833 to 1878 from Pixley and Abell's tables; and from 1879 to 1896 from daily cablegrams from London to the Bureau of the Mint.]

Years.	Ratio.	Years.	Ratio.	Years.	Ratio.	Years.	Ratio.	Years.	Ratio.	Years.	Ratio.
1687....	14.94	1723...	15.20	1759...	14.15	1794...	15.37	1829...	15.78	1864...	15.37
1688....	14.94	1724...	15.11	1760...	14.14	1795...	15.55	1830...	15.82	1865...	15.44
1689....	15.02	1725...	15.11	1761...	14.54	1796...	15.65	1831...	15.72	1866...	15.43
1690....	15.02	1726...	15.15	1762...	15.27	1797...	15.41	1832...	15.73	1867...	15.57
1691....	14.98	1727...	15.24	1763...	14.99	1798...	15.59	1833...	15.93	1868...	15.59
1692....	14.92	1728...	15.11	1764...	14.70	1799...	15.74	1834...	15.73	1869...	15.60
1693....	14.83	1729...	14.92	1765...	14.83	1800...	15.68	1835...	15.80	1870...	15.57
1694....	14.87	1730...	14.81	1766...	14.80	1801...	15.46	1836...	15.72	1871...	15.57
1695....	15.02	1731...	14.94	1767...	14.85	1802...	15.26	1837...	15.83	1872...	15.63
1696....	15.00	1732...	15.09	1768...	14.80	1803...	15.41	1838...	15.85	1873...	15.93
1697....	15.20	1733...	15.18	1769...	14.72	1804...	15.41	1839...	15.62	1874...	16.16
1698....	15.07	1734...	15.39	1770...	14.62	1805...	15.79	1840...	15.62	1875...	16.64
1699....	14.94	1735...	15.41	1771...	14.66	1806...	15.52	1841...	15.70	1876...	17.75
1700....	14.81	1736...	15.18	1772...	14.52	1807...	15.43	1842...	15.87	1877...	17.20
1701....	15.07	1737...	15.02	1773...	14.62	1808...	16.08	1843...	15.93	1878...	17.92
1702....	15.52	1738...	14.91	1774...	14.62	1809...	15.96	1844...	15.85	1879...	18.39
1703....	15.17	1739...	14.91	1775...	14.72	1810...	15.77	1845...	15.92	1880...	18.05
1704....	15.22	1740...	14.94	1776...	14.55	1811...	15.53	1846...	15.90	1881...	18.25
1705....	15.11	1741...	14.92	1777...	14.54	1812...	16.11	1847...	15.80	1882...	18.20
1706....	15.27	1742...	14.85	1778...	14.68	1813...	16.25	1848...	15.85	1883...	18.64
1707....	15.44	1743...	14.85	1779...	14.80	1814...	15.04	1849...	15.78	1884...	18.61
1708....	15.41	1744...	14.87	1780...	14.72	1815...	15.26	1850...	15.70	1885...	19.41
1709....	15.31	1745...	14.98	1781...	14.78	1816...	15.28	1851...	15.46	1886...	20.78
1710....	15.22	1746...	15.13	1782...	14.42	1817...	15.11	1852...	15.59	1887...	21.10
1711....	15.29	1747...	15.26	1783...	14.48	1818...	15.35	1855...	15.33	1888...	22.00
1712....	15.31	1748...	15.11	1784...	14.70	1819...	15.33	1854...	15.33	1889...	22.10
1713....	15.24	1749...	14.80	1785...	14.92	1820...	15.62	1855...	15.38	1890...	19.75
1714....	15.13	1750...	14.55	1786...	14.96	1821...	15.95	1856...	15.38	1891...	20.92
1715....	15.11	1751...	14.39	1787...	14.92	1822...	15.80	1857...	15.27	1892...	23.72
1716....	15.09	1752...	14.54	1788...	14.65	1823...	15.84	1858...	15.38	1893...	26.49
1717....	15.13	1753...	14.54	1789...	14.75	1824...	15.82	1859...	15.19	1894...	32.56
1718....	15.11	1754...	14.48	1790...	15.04	1825...	15.70	1860...	15.29	1895...	31.60
1719....	15.09	1755...	14.68	1791...	15.05	1826...	15.76	1861...	15.50	1896...	30.59
1720....	15.04	1756...	14.94	1792...	15.17	1827...	15.74	1862...	15.35	1897...	34.20
1721....	15.05	1757...	14.87	1793...	15.00	1828...	15.78	1863...	15.37	1898...	35.03
1722....	15.17	1758...	14.85								

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873–1898.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1873.	*Pence.*	*Pence.*	*Pence.*				
January	59 15/16	59¾	59.844	$1.31185	$1.31150	$1.01463	15.75
February	59 15/16	59¾	59.844	1.31185	1.31150	1.01463	15.75
March	59⅞	59¾	59.813	1.31117	1.29563	1.01411	15.76
April	59¾	59¾	59.750	1.30979	1.29038	1.01304	15.78
May	59⅞	59⅜	59.625	1.30705	1.30023	1.01092	15.81
June	59½	59 5/16	59.406	1.30224	1.29893	1.00720	15.87
July	59⅜	59 5/16	59.344	1.30089	1.29982	1.00824	15.89
August	59 3/16	58 13/16	59.000	1.29334	1 28186	1.00031	15.98
September	59⅛	58 13/16	58.968	1.29264	1.27864	.99977	15.99
October	59	58½	58.750	1.28786	1.26069	.99607	16.05
November	58⅛	57⅞	58.000	1.27142	1.23981	.98336	16.25
December	58 1/16	58	58.036	1.27221	1.26136	.98397	16.24
Average	*a* 59 15/16	*a* 57⅞	59.198	1.29769	1.28586	1.00368	15.93
1874.							
January	59½	58	58.750	1.28786	1.28795	.99607	16.05
February	59	58½	58.750	1.28786	1.28954	.99607	16.05
March	59⅜	58½	58.937	1.29196	1.29422	.99925	16.00
April	59¼	58 9/16	58.906	1.29128	1.29619	.99872	15.00
May	58⅞	58½	58.687	1.28648	1.29798	.99524	16.06
June	59	58½	58.750	1.28786	1.29805	.99607	16.05
July	58½	58¼	58.375	1.27964	1.28793	.98972	16.15
August	58⅛	57⅞	58.000	1.27142	1.28018	.98336	16.25
September	58	57⅜	57.687	1.26456	1.26671	.97805	16 34
October	57 13/16	57⅝	57.718	1.26524	1.26807	.97858	16.33
November	58¼	57¾	58.000	1.27142	1.27756	.98336	16.25
December	57¾	57¼	57.500	1.26046	1.26836	.97488	16.40
Average	*a* 59½	*a* 57¼	58.338	1.27883	1.28439	.98909	16.16
1875.							
January	57⅝	57½	57.562	1.26182	1.27243	.97593	16.38
February	57½	57⅜	57.437	1.25908	1.26050	.97382	16.41
March	57¼	57	57.125	1.25224	1.24800	.96853	16.50
April	57⅜	57⅛	57.250	1.25498	1.26104	.97064	16.47
May	57	56⅛	56.562	1.23990	1.24844	.95898	16.67
June	55⅞	55½	55.687	1.22072	1.22975	.94415	16 77
July	55⅞	55 11/16	55.781	1.22278	1 22868	.94576	16 90
August	56⅝	56	56.312	1.23442	1 24038	.95474	16.74
September	56¾	56 11/16	56.218	1.23236	1.22368	.95315	16.77
October	57⅛	56¾	56.987	1.24922	1.23856	.96619	16.54
November	56 15/16	56⅝	56.781	1.24470	1.24304	.96269	16.60
December	56⅝	56⅛	56.375	1.23580	1.24151	.95581	16.72
Average	*a* 57⅝	*a* 55½	56.673	1.24233	1.24466	.96086	16.64
1876.							
January	56⅛	54⅞	55.500	1.21662	1.22175	.94097	16.99
February	54⅞	53	53.937	1 18236	1.18356	.91448	17.48
March	54¼	52½	53.375	1.17004	1.17809	.90495	17.60
April	54	53½	53.750	1.17826	1.18395	.91131	17.54
May	54	52	53.000	1.16182	1.16981	.89859	17.79
June	52	50	51.000	1.11797	1.12567	.86447	18.49
July	51½	46¾	49.125	1.07687	1.08429	.83277	19.19
August	53¾	50¼	52.000	1.13990	1.14634	.88184	18.13
September	52 9/16	51⅛	51.843	1.13645	1.13372	.87897	18.10
October	53⅝	52	52.812	1.15770	1.15258	.89540	17.85
November	55	53⅛	54.062	1.18510	1.17860	.91660	17.44
December	58½	55¼	56.875	1.24676	1.24100	.96429	16.58
Average	*a* 58½	*a* 46¾	53.106	1.16414	1.16661	.90039	17.75

a Denotes highest and lowest for each year.

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873-1898—Continued.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1877.	*Pence.*	*Pence.*	*Pence.*				
January	58¼	56⅞	57.567	$1.26193	$1.25843	$0.97602	16.38
February	57¾	56	56.875	1.24676	1.24356	.96429	16.58
March	56⅛	53¼	54.687	1.19880	1.19473	.92928	17.24
April	55	53½	54.250	1.18922	1.19374	.91978	17.38
May	54⅝	53⅝	54.125	1.18648	1.19485	.91766	17.42
June	54	53½	53.750	1.17826	1.18637	.91131	17.54
July	54½	53⅞	54.187	1.18784	1.19260	.91872	17.40
August	54¼	54	54.125	1.18648	1.18538	.91766	17.42
September	55¼	54¼	54.750	1.20018	1.20005	.92826	17.22
October	55⅝	54⅝	55.125	1.20840	1.20604	.93462	17.10
November	55	54	54.500	1.19470	1.19065	.92402	17.30
December	54¼	53¾	54.000	1.18374	1.18649	.91555	17.46
Average	*a* 58¼	*a* 53¼	54.828	1.20189	1.20274	.92958	17.20
1878.							
January	54	53½	53.750	1.17826	1.17426	.91131	17.54
February	55¼	53 15/16	54.593	1.19674	1.19219	.92560	17.27
March	55	54⅛	54.562	1.19606	1.19987	.92507	17.28
April	54¼	53⅞	54.062	1.18510	1.19228	.91660	17.44
May	53⅞	53¼	53.562	1.17414	1.17812	.90812	17.60
June	53 7/16	52½	52.968	1.16112	1.16314	.89805	17.80
July	52 13/16	52 5/16	52.562	1.15222	1.15304	.89117	17.94
August	52¾	52⅛	52.437	1.14948	1.15385	.88905	17.98
September	52⅛	51½	51.812	1.13577	1.13659	.87844	18.20
October	51 9/16	49½	50.531	1.10769	1.10621	.85672	18.66
November	50¾	50⅜	50.562	1.10837	1.10917	.85725	18.65
December	50 11/16	49½	50.093	1.09809	1.10069	.84930	18.82
Average	*a* 55¼	*a* 49½	52.624	1.15358	1.15495	.89222	17.92
1879.							
January	51	49⅝	50.031	1.09673	1.10054	.84825	18.84
February	50¼	49½	49.875	1.09331	1.09837	.84560	18.90
March	50¼	48⅞	49.562	1.08645	1.09272	.84030	19.02
April	50⅛	49½	49.812	1.09193	1.09631	.84458	18.92
May	51¾	50	50.875	1.11524	1.12131	.86257	18.53
June	53	51½	52.250	1.14538	1.15303	.88587	18.04
July	52⅛	51⅛	51.685	1.13299	1.13412	.87629	18.24
August	51 13/16	52⅛	51.601	1.13115	1.12534	.87487	18.27
September	51¾	51⅜	51.3125	1.12483	1.12439	.86998	18.38
October	53¾	51 9/16	52.271	1.14584	1.13980	.88623	18.04
November	53¾	53	53.386	1.17028	1.16319	.90513	17.66
December	53	52⅜	52.5975	1.15299	1.14761	.89176	17.93
Average	*a* 53¾	*a* 48⅞	51.271	1.12392	1.12473	.86928	18.39
1880.							
January	52¾	52 5/16	52.480	1.15042	1.14700	.88977	17.96
February	52 9/16	52	52.326	1.14704	1.14594	.88716	18.02
March	52½	51¾	51.995	1.13979	1.14511	.88155	18.13
April	52¼	51¾	51.975	1.13935	1.14953	.88121	18.14
May	52¼	52 1/16	52.131	1.14277	1.14726	.88386	18.09
June	52¾	52 1/16	52.454	1.14985	1.15712	.88933	17.97
July	52 13/16	52½	52.687	1.15496	1.15348	.89329	17.90
August	52 13/16	51½	52.635	1.15382	1.14873	.89240	17.91
September	52 9/16	52⅛	52.437	1.14948	1.14246	.88905	17.98
October	52 5/16	51⅞	52.143	1.14303	1.13798	.88406	18.08
November	51 13/16	51⅝	51.75	1.13442	1.12698	.87740	18.22
December	52	51¾	51.82	1.13595	1.12669	.87858	18.20
Average	*a* 52 13/16	*a* 51½	52.236	1.14507	1.14402	.88564	18.05

a Denotes highest and lowest for each year-

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873-1898—Continued.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1881.	*Pence.*	*Pence.*	*Pence.*				
January	$51\frac{5}{8}$	51	51.28	$1.12411	$1.11821	$0.86942	18.39
February	$52\frac{7}{8}$	$51\frac{1}{4}$	51.41	1.12696	1.13407	.87163	18.34
March	$52\frac{7}{8}$	52	52.19	1.14406	1.13616	.88486	18.06
April	$52\frac{3}{16}$	52	52.07	1.14143	1.13697	.88282	18.11
May	52	$51\frac{1}{2}$	51.66	1.13244	1.13396	.87587	18.25
June	$51\frac{5}{8}$	51	51.33	1.12521	1.12532	.87028	18.37
July	$52\frac{1}{4}$	$50\frac{7}{8}$	51.355	1.12576	1.12454	.87070	18.36
August	$51\frac{7}{8}$	$51\frac{1}{4}$	51.559	1.13023	1.12543	.87416	18.29
September	$51\frac{13}{16}$	$51\frac{5}{8}$	51.706	1.13345	1.12833	.87665	18.23
October	$52\frac{1}{8}$	$51\frac{7}{8}$	51.895	1.13760	1.13199	.87986	18.17
November	52	$51\frac{7}{8}$	51.487	1.12865	1.13396	.87294	18.31
December	52	$51\frac{7}{8}$	51.889	1.13746	1.13282	.87975	18.17
Average	*a* $52\frac{7}{8}$	*a* $50\frac{7}{8}$	51.653	1.13229	1.13015	.87575	18.25
1882.							
January	$52\frac{1}{8}$	$51\frac{7}{8}$	51.980	1.13946	1.14121	.88130	18.14
February	$52\frac{1}{8}$	52	52.028	1.14051	1.14937	.88211	18.12
March	$52\frac{1}{16}$	$51\frac{13}{16}$	51.963	1.13908	1.14700	.88101	18.14
April	$52\frac{1}{4}$	$52\frac{1}{16}$	52.122	1.14257	1.15081	.88370	18.09
May	$52\frac{3}{8}$	$52\frac{1}{8}$	52.223	1.14479	1.15386	.88542	18.06
June	$52\frac{3}{8}$	$51\frac{3}{4}$	52.016	1.14025	1.13879	.88191	18.13
July	52	$51\frac{5}{8}$	51.8177	1.13590	1.14079	.87854	18.19
August	$52\frac{1}{16}$	$51\frac{7}{8}$	51.974	1.13933	1.14659	.88120	18.14
September	$52\frac{1}{16}$	$51\frac{3}{4}$	51.913	1.13799	1.14291	.88016	18.17
October	$51\frac{15}{16}$	$51\frac{1}{2}$	51.75	1.13442	1.13350	.87740	18.22
November	$51\frac{3}{4}$	51	51.39	1.12652	1.12258	.87129	18.35
December	51	50	50.48	1.10658	1.10306	.85587	18.68
Average	*a* $52\frac{3}{8}$	*a* 50	51.8047	1.13562	1.13920	.87833	18.20
1883.							
January	$50\frac{3}{8}$	$50\frac{1}{8}$	50.264	1.10184	1.10058	.85220	18.76
February	51	$50\frac{3}{8}$	50.6025	1.10926	1.10912	.85794	18.63
March	$51\frac{3}{16}$	$50\frac{3}{4}$	51.022	1.11846	1.11302	.86504	18.48
April	$50\frac{7}{8}$	$50\frac{3}{8}$	50.572	1.10859	1.10704	.85742	18.65
May	$50\frac{9}{16}$	$50\frac{1}{16}$	50.206	1.10057	1.10198	.85122	18.78
June	$50\frac{9}{16}$	$50\frac{1}{16}$	50.187	1.10015	1.10835	.85089	18.79
July	$50\frac{1}{2}$	$50\frac{5}{16}$	50.375	1.10427	1.10862	.85408	18.72
August	$50\frac{9}{16}$	$50\frac{1}{2}$	50.524	1.10754	1.10831	.85661	18.66
September	$50\frac{15}{16}$	$50\frac{5}{8}$	50.731	1.11208	1.11047	.86012	18.58
October	51	$50\frac{7}{8}$	50.914	1.11609	1.11305	.86322	18.52
November	$50\frac{15}{16}$	$50\frac{1}{2}$	50.702	1.11144	1.10887	.85963	18.59
December	51	$50\frac{9}{16}$	50.843	1.11453	1.11117	.86202	18.55
Average	*a* $51\frac{3}{16}$	*a* $50\frac{1}{16}$	50.5785	1.10874	1.10838	.85754	18.64
1884.							
January	51	$50\frac{3}{4}$	50.865	1.11502	1.11667	.86239	18.53
February	$51\frac{3}{8}$	51	51.135	1.12093	1.12832	.86696	18.44
March	$51\frac{1}{8}$	$50\frac{11}{16}$	50.937	1.11659	1.12513	.86361	18.51
April	51	$50\frac{1}{2}$	50.757	1.11265	1.12118	.86056	18.57
May	$50\frac{15}{16}$	$50\frac{3}{4}$	50.839	1.11445	1.11856	.86195	18.54
June	$50\frac{15}{16}$	$50\frac{5}{8}$	50.800	1.11359	1.11318	.86129	18.56
July	$50\frac{7}{8}$	$50\frac{11}{16}$	50.788	1.11333	1.10991	.86109	18.56
August	$50\frac{7}{8}$	$50\frac{5}{8}$	50.779	1.11313	1.10953	.86093	18.57
September	$50\frac{13}{16}$	$50\frac{5}{8}$	50.738	1.11224	1.10956	.86024	18.58
October	$50\frac{7}{8}$	$50\frac{7}{16}$	50.724	1.11193	1.10744	.86000	18.59
November	$50\frac{7}{16}$	$49\frac{11}{16}$	50.007	1.09621	1.09241	.84785	18.86
December	$49\frac{7}{8}$	$49\frac{1}{2}$	49.641	1.08818	1.08590	.84163	18.99
Average	*a* $51\frac{3}{8}$	*a* $49\frac{1}{2}$	50.667	1.11068	1.11148	.85904	18.61

a Denotes highest and lowest for each year.

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873–1898—Continued.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1885.	*Pence.*	*Pence.*	*Pence.*				
January	50	$49\frac{3}{8}$	49.649	$1.08836	$1.09089	$0.84177	18.99
February	$49\frac{1}{2}$	$48\frac{3}{4}$	49.172	1.07791	1.07505	.83369	19.18
March	$49\frac{3}{16}$	49	49.067	1.07561	1.07610	.83191	19.22
April	$49\frac{7}{8}$	$48\frac{7}{8}$	49.164	1.07773	1.08299	.83355	19.18
May	50	$48\frac{7}{8}$	49.235	1.07929	1.08915	.83476	19.15
June	$49\frac{1}{4}$	49	49.154	1.07751	1.07818	.83338	19.18
July	$49\frac{1}{4}$	$49\frac{1}{8}$	49.194	1.07839	1.07769	.83406	19.17
August	$49\frac{3}{16}$	$48\frac{7}{16}$	48.836	1.07054	1.07075	.82799	19.31
September	$48\frac{3}{8}$	$47\frac{1}{4}$	47.623	1.04395	1.04083	.80743	19.80
October	$47\frac{9}{16}$	$47\frac{1}{4}$	47.427	1.03965	1.03897	.80410	19.88
November	$47\frac{1}{2}$	$47\frac{5}{16}$	47.420	1.03950	1.03579	.80398	19.88
December	$47\frac{1}{2}$	$46\frac{7}{8}$	47.125	1.03303	1.03331	.79898	20.01
Average	*a* 50	*a* $46\frac{7}{8}$	48.588	1.06510	1.06579	.82379	19.41
1886.							
January	47	$46\frac{7}{16}$	46.733	1.02444	1.02951	.79234	20.17
February	$46\frac{7}{8}$	$46\frac{1}{2}$	46.685	1.02339	1.02852	.79152	20.19
March	$46\frac{7}{8}$	$46\frac{11}{16}$	46.766	1.02517	1.02999	.79290	20.16
April	$46\frac{11}{16}$	46	46.386	1.01683	1.02032	.78645	20.33
May	46	$44\frac{3}{4}$	45.425	.99577	1.00046	.77016	20.76
June	$45\frac{1}{8}$	$44\frac{11}{16}$	44.835	.98283	.98768	.76015	21.03
July	$44\frac{5}{8}$	42	43.873	.96175	.96395	.74385	21.49
August	$42\frac{5}{8}$	42	42.310	.92748	.92333	.71734	22.28
September	$44\frac{5}{8}$	$42\frac{5}{8}$	43.841	.96105	.95691	.74331	21.50
October	$45\frac{7}{8}$	$44\frac{1}{2}$	45.089	.98840	.98333	.76446	20.91
November	47	$45\frac{7}{8}$	46.486	1.01903	1.01424	.78815	20.28
December	$46\frac{3}{8}$	$45\frac{1}{4}$	46.068	1.00986	1.00384	.78100	20.56
Average	*a* 47	*a* 42	45.375	.99467	.99517	.76931	20.78
1887.							
January	$47\frac{1}{8}$	$46\frac{1}{4}$	46.833	1.02663	1.02560	.79403	20.13
February	47	$46\frac{5}{16}$	46.660	1.02284	1.02669	.79110	20.21
March	$46\frac{7}{16}$	$44\frac{5}{16}$	45.440	.99610	.99706	.77042	20.75
April	$44\frac{5}{8}$	$43\frac{1}{4}$	43.964	.96374	.96490	.74539	21.44
May	$43\frac{3}{4}$	$43\frac{7}{16}$	43.580	.95532	.95658	.73887	21.63
June	$44\frac{1}{4}$	$43\frac{3}{4}$	43.968	.96383	.96130	.74546	21.44
July	$44\frac{7}{16}$	$43\frac{7}{8}$	44.148	.96777	.96335	.74850	21.36
August	$45\frac{3}{16}$	$44\frac{1}{4}$	44.570	.97702	.97154	.75566	21.15
September	45	$44\frac{7}{16}$	44.642	.97860	.97287	.75688	21.12
October	$44\frac{1}{2}$	$43\frac{13}{16}$	44.159	.96802	.96442	.74870	21.35
November	44	$43\frac{11}{16}$	43.840	.96102	.95788	.74328	21.51
December	$45\frac{1}{8}$	$43\frac{13}{16}$	44.368	.97260	.96972	.75224	21.25
Average	*a* $47\frac{1}{8}$	*a* $43\frac{1}{4}$	44.681	.97946	.97766	.75755	21.10
1888.							
January	$44\frac{9}{16}$	$44\frac{3}{16}$	44.380	.97286	.97219	.75244	21.21
February	$44\frac{3}{16}$	$43\frac{13}{16}$	44.033	.96525	.96421	.74656	21.41
March	$43\frac{3}{4}$	43	43.293	.94903	.95083	.73401	21.78
April	$42\frac{7}{8}$	$42\frac{1}{2}$	42.669	.93535	.93709	.72343	22.10
May	$42\frac{5}{8}$	$41\frac{5}{8}$	42.048	.92174	.92577	.71249	22.42
June	$42\frac{1}{4}$	42	42.092	.92271	.92683	.71365	22.43
July	$42\frac{5}{16}$	42	42.111	.92312	.92634	.71418	22.39
August	$42\frac{1}{8}$	$41\frac{15}{16}$	42.007	.92084	.92251	.71221	22.44
September	$44\frac{1}{4}$	$42\frac{1}{16}$	43.160	.94612	.94971	.73176	21.84
October	$43\frac{3}{8}$	$42\frac{7}{8}$	43.097	.94474	.94697	.73069	21.88
November	$43\frac{1}{8}$	$42\frac{7}{8}$	43.029	.94325	.94595	.73163	21.85
December	$42\frac{7}{8}$	$42\frac{5}{16}$	42.516	.93200	.93581	.72084	22.18
Average	*a* $44\frac{9}{16}$	*a* $41\frac{5}{8}$	42.869	.93974	.94202	.72683	22

a Denotes highest and lowest for each year.

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873-1898—Continued.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1889.	*Pence.*	*Pence.*	*Pence.*				
January	42 11/16	42⅜	42.544	.93261	.93616	.72131	22.16
February	42¾	42½	42.594	.93371	.93752	.72216	22.13
March	42⅝	42¼	42.521	.93211	.93652	.72092	22.17
April	42 5/16	42⅛	42.185	.92474	.92918	.71522	22.35
May	42¼	41 15/16	42.162	.92424	.92893	.71484	22.36
June	42 3/16	42	42.034	.92143	.92547	.71266	22.43
July	42 5/16	42	42.159	.92417	.92638	.71462	22.36
August	42 9/16	42¼	42.349	.92834	.92959	.71801	22.26
September	42 11/16	42⅜	42.522	.93213	.93477	.72944	22.17
October	43½	42⅝	42.944	.94138	.94036	.72809	21.95
November	44⅜	43⅝	43.923	.96284	.95959	.74469	21.46
December	44⅜	43¾	43.967	.96381	.95894	.74544	21.44
Average	*a* 44⅜	*a* 41 15/16	42.658	.93511	.93695	.72325	22.10
1890.							
January	44⅞	44⅛	44.502	.97554	.97447	.75451	21.19
February	44⅝	43⅝	44.042	.96545	.96563	.74671	21.41
March	44⅜	43¾	43.908	.96251	.96024	.74444	21.47
April	48	43⅞	45.451	.99634	.99751	.77060	20.74
May	47½	46	46.971	1.02966	1.02820	.79637	20.07
June	49	46¾	47.727	1.04623	1.04778	.80919	19.75
July	50½	47 9/16	49.201	1.07854	1.08367	.83418	19.16
August	54½	50¾	52.707	1.15540	1.15643	.89363	17.89
September	54⅝	50	53.123	1.16452	1.15946	.90068	17.74
October	51½	48⅛	49.708	1.08966	1.08821	.84278	18.97
November	49½	45	47.305	1.03698	1.03404	.80183	19.93
December	49½	47¼	48.135	1.05518	1.04939	.81611	19.59
Average	*a* 54⅝	*a* 43⅝	47.732	1.04634	1.04542	.80927	19.75
1891.							
January	48¾	46⅞	47.9399	1.05089	1.05034	.81279	19.67
February	46¾	44⅛	45.5470	.99844	1.00202	.77223	20.70
March	45 5/16	44⅝	44.928	.98487	.98854	.76173	20.98
April	45	43⅞	44.528	.97610	.99453	.75495	21.17
May	45⅛	44¼	44.481	.97507	.97805	.75415	21.20
June	46	44¼	44.973	.98586	.98924	.76250	20.97
July	46⅜	45⅝	46.002	1.00841	1.00825	.77994	20.49
August	46 1/16	44 1/16	45.412	.99548	.99390	.76994	20.76
September	45 5/16	44¾	45.016	.98680	.97767	.76322	20.95
October	45	44 1/16	44.555	.97669	.97046	.75540	21.16
November	44 1/16	43½	43.690	.95773	.95257	.74044	21.58
December	44¼	43½	43.775	.95959	.95517	.74195	21.54
Average	*a* 48¾	*a* 43½	45.0706	.98800	.98839	.76416	20.92
1892.							
January	43¾	41¾	42.830	.93888	.93515	.72616	22.01
February	41 13/16	41⅛	41.460	.90885	.91106	.70293	22.74
March	41⅝	39	40.087	.87875	.89699	.67965	23.52
April	40⅛	39¼	39.703	.87033	.87229	.67314	23.75
May	40⅜	39 11/16	40.060	.87816	.88029	.67920	23.53
June	41⅛	40 1/16	40.564	.88921	.89298	.68772	23.24
July	40 3/16	39 1/16	39.632	.86877	.87181	.67193	23.79
August	39 1/16	37⅞	38.295	.83947	.84203	.65136	24.62
September	38 5/16	38⅛	38.158	.83646	.83801	.64694	24.71
October	39⅝	38⅛	38.937	.85354	.85287	.66013	24.21
November	39¼	38¾	38.971	.85428	.85512	.66073	24.19
December	39⅜	37 15/16	38.346	.84058	.84274	.65013	24.59
Average	*a* 43¾	*a* 37⅞	39.754	.87145	.87428	.67401	23.72

a Denotes highest and lowest for each year.

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873-1898—Continued.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1893.	*Pence.*	*Pence.*	*Pence.*				
January	$38\frac{9}{16}$	$38\frac{1}{8}$	38.331	.84026	.84217	.64988	24.60
February	$38\frac{1}{2}$	$38\frac{1}{4}$	38.356	.84080	.84316	.65030	24.46
March	$38\frac{3}{8}$	$37\frac{9}{16}$	38.108	.83537	.83255	.64610	24.74
April	$38\frac{5}{16}$	$37\frac{7}{8}$	38.028	.83361	.83610	.64495	24.79
May	$38\frac{9}{16}$	$37\frac{5}{8}$	38.069	.83451	.83856	.64544	24.77
June	$38\frac{3}{4}$	$30\frac{1}{2}$	37.279	.81719	.81654	.63204	25.29
July	$34\frac{1}{4}$	$32\frac{1}{8}$	33.060	.72471	.71981	.56052	28.52
August	$34\frac{7}{8}$	$32\frac{5}{8}$	33.944	.74409	.74337	.57550	27.78
September	$34\frac{1}{2}$	$33\frac{7}{8}$	34.120	.74795	.74709	.57849	27.63
October	$34\frac{1}{8}$	$31\frac{1}{2}$	33.608	.73672	.73339	.56723	28.05
November	$32\frac{3}{4}$	$31\frac{1}{2}$	32.240	.70673	.70390	.54444	29.25
December	$32\frac{5}{16}$	$31\frac{1}{2}$	32.015	.70180	.70177	.54275	29.45
Average	*a* $38\frac{3}{4}$	*a* $30\frac{1}{2}$	35.596	.78030	.77987	.60351	26.49
1894.							
January	$31\frac{3}{4}$	$30\frac{1}{2}$	31.339	.68698	.68694	.53133	30.09
February	$30\frac{3}{4}$	$27\frac{1}{2}$	29.169	.63942	.64052	.49540	32.32
March	28	27	27.286	.59814	.60037	.46434	34.56
April	$29\frac{3}{8}$	$28\frac{1}{8}$	28.802	.63137	.63382	.49022	32.74
May	$29\frac{1}{4}$	$28\frac{1}{16}$	28.704	.62923	.63180	.48865	32.85
June	$28\frac{15}{16}$	$28\frac{5}{16}$	28.685	.62880	.63129	.48826	32.87
July	$28\frac{15}{16}$	$28\frac{7}{16}$	28.673	.62854	.63041	.48613	32.79
August	$30\frac{1}{2}$	$28\frac{11}{16}$	29.377	.64398	.64474	.49807	32.06
September	$30\frac{1}{4}$	$29\frac{3}{16}$	29.588	.64860	.64802	.50165	31.87
October	$29\frac{9}{16}$	$28\frac{15}{16}$	29.150	.63900	.64005	.49422	32.29
November	$29\frac{5}{16}$	$28\frac{3}{8}$	28.977	.63520	.63628	.49128	32.48
December	$28\frac{1}{2}$	$27\frac{3}{16}$	27.747	.60825	.61063	.47044	33.85
Average	*a* $31\frac{3}{4}$	*a* 27	28.958	.63479	.63624	.49097	32.56
1895.							
January	$27\frac{7}{16}$	$27\frac{3}{16}$	27.331	.59912	.60190	.46338	34.50
February	$27\frac{11}{16}$	$27\frac{5}{16}$	27.440	.60152	.60444	.46523	34.19
March	$29\frac{3}{4}$	$27\frac{5}{8}$	28.337	.62118	.62447	.48044	33.27
April	$30\frac{7}{8}$	$29\frac{7}{8}$	30.415	.66674	.67059	.51568	30.82
May	$30\frac{7}{8}$	$30\frac{3}{16}$	30.625	.67133	.67289	.51923	30.72
June	$30\frac{11}{16}$	$30\frac{3}{16}$	30.460	.66771	.67139	.51643	30.78
July	$30\frac{5}{8}$	$30\frac{3}{16}$	30.439	.66726	.67187	.51608	30.98
August	$30\frac{1}{2}$	$30\frac{1}{4}$	30.393	.66625	.67122	.51261	30.87
September	$30\frac{9}{16}$	$30\frac{7}{16}$	30.489	.66836	.67234	.51694	30.92
October	$31\frac{3}{8}$	$30\frac{5}{8}$	30.928	.67798	.68010	.52437	30.49
November	31	$30\frac{5}{8}$	30.789	.67493	.68592	.52201	30.62
December	$30\frac{11}{16}$	30	30.395	.66629	.66963	.51533	31.02
Average	*a* $31\frac{3}{8}$	*a* $27\frac{3}{16}$	29.837	.65406	.65806	.50587	31.60
1896.							
January	$30\frac{7}{8}$	$30\frac{1}{2}$	30.649	.67186	.67518	.51966	30.76
February	$31\frac{9}{16}$	$30\frac{3}{4}$	30.992	.67938	.68104	.52545	30.42
March	$31\frac{15}{16}$	$31\frac{1}{8}$	31.372	.68771	.68988	.53190	30.05
April	$31\frac{3}{16}$	$30\frac{13}{16}$	31.060	.68087	.68401	.52661	30.36
May	$31\frac{1}{4}$	$30\frac{15}{16}$	31.078	.68126	.68851	.52691	30.34
June	$31\frac{9}{16}$	$31\frac{3}{16}$	31.403	.68839	.69091	.53242	30.02
July	$31\frac{1}{2}$	$31\frac{3}{8}$	31.4399	.68919	.69185	.53304	29.99
August	$31\frac{3}{8}$	$30\frac{5}{8}$	30.9593	.67866	.67879	.52490	30.45
September	$30\frac{11}{16}$	30	30.3400	.66508	.66169	.51439	31.08
October	$30\frac{5}{16}$	$29\frac{3}{4}$	30.0347	.65840	.65528	.50923	31.39
November	30	$29\frac{3}{4}$	29.9212	.65590	.65470	.50748	31.51
December	30	$29\frac{13}{16}$	29.9125	.65571	.65605	.50715	31.52
Average	*a* $31\frac{15}{16}$	*a* $29\frac{3}{4}$	30.8219	.67565	.67566	.52257	30.59

a Denotes highest and lowest for each year.

XX.—HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION, AND VALUE OF AN OUNCE FINE, BULLION VALUE OF A UNITED STATES SILVER DOLLAR, AND COMMERCIAL RATIO OF SILVER TO GOLD, 1873–1898—Continued.

Years.	Highest.	Lowest.	Average London price per ounce standard, 0.925.	Equivalent value of ounce fine with exchange at par, $4.8665.	Equivalent value of ounce fine based on average price of exchange.	Bullion value of a United States silver dollar at average price of silver, exchange at par.	Commercial ratio of silver to gold.
1897.	*Pence.*	*Pence.*	*Pence.*				
January	29 13/16	29 11/16	29.7275	.65166	.65235	.50401	31.72
February	29¾	29 11/16	29.7119	.65131	.65169	.50379	31.73
March	29⅝	28 5/16	28.9647	.63494	.63577	.49108	32.55
April	28½	28 3/16	28.3726	.62196	.62323	.48104	33.23
May	28 3/16	27½	27.7750	.60886	.61010	.47091	33.95
June	27¾	27½	27.5817	.60462	.60536	.46763	34.19
July	27 11/16	26⅜	27.3503	.59955	.60024	.46371	34.47
August	26⅝	23¾	24.9567	.54708	.54625	.42313	37.76
September	27⅜	23⅝	25.6500	.56227	.56082	.43488	36.76
October	27½	25 9/16	27.1418	.59498	.58435	.46019	34.74
November	27½	26	26.8125	.58776	.58646	.45459	35.17
December	27¾	25 15/16	26.8050	.58759	.58588	.45446	35.18
Average	*a* 29 13/16	*a* 23⅝	27.5708	.60438	.60354	.46745	34.20
1898.							
January	26⅞	26⅛	26.2000	.57433	.57578	.44420	35.81
February	26¼	25⅝	25.8984	.56772	.56606	.43909	36.41
March	26	25	25.4583	.55807	.55509	.43163	37.04
April	26⅜	25 11/16	25.9453	.56875	.56543	.43989	36.34
May	26⅞	25⅞	26.3150	.57685	.57554	.44615	35.83
June	27½	26 11/16	27.0932	.59392	.59274	.45936	34.80
July	27⅞	27	27.3202	.59889	.59768	.46320	34.51
August	28	27⅛	27.4831	.60246	.60087	.46596	34.31
September	28⅜	27 11/16	28.0456	.61479	.61209	.47531	33.62
October	28¼	27 9/16	27.9010	.61162	.60931	.47305	33.79
November	28 5/16	27 9/16	27.9332	.61232	.61093	.47359	33.75
December	27⅝	27¼	27.4375	.60146	.59892	.46519	34.38
Average	*a* 28⅜	*a* 25	26.9192	.59010	.58837	.45640	35.03

a Denotes highest and lowest for each year.

XXI.—Imports of Lead Ore, Lead Bullion, Silver-Lead Ore, Copper Bullion during the Calendar Year

Countries from which exported, and ports of entry.	LEAD ORE.		SILVER-LEAD ORE.		COPPER MATTE AND BULLION.		BASE BULLION.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
From Mexico:								
Arizona	11, 554	$1, 251	12, 384, 989	$711, 467	35, 271, 632	$2, 116, 003	....	....
Corpus Christi	1, 187, 103	73, 401	1, 056, 600	19, 332	2, 398, 484	290, 403	199, 755	$13, 265
Saluria	11. 746, 929	696, 476	272, 337	38, 256	....	....	4, 013, 757	280, 792
Paso del Norte	....	....	273, 413, 580	3, 616, 802	....	....	....	....
Galveston	400, 616	26, 095	126, 902	8, 468	168, 803	22, 438	740, 850	45, 337
Puget Sound	303, 570	2, 127	1, 446, 778	46, 489	....	....	....	....
San Francisco	....	....	8, 426, 460	1, 310, 403	....	....	....	....
Perth Amboy	11. 474, 100	1, 373, 698	1, 348, 766	32, 589	1, 063, 325	224, 638	....	....
Newark	5, 078, 766	413, 102	....	....	920	987	....	....
New York	....	....	(*a*)	327, 511	....	....	(*a*)	10, 044, 190
Total from Mexico	30, 202, 638	2, 586, 150	298, 476, 412	6, 111, 317	38, 903, 164	2, 654, 469	4, 954, 362	10, 383, 584
From British Columbia:								
Niagara	....	....	360, 672	111, 066	....	....	390, 502	128, 459
Puget Sound	....	....	54, 743, 139	2, 118, 653	97, 235, 453	2, 371, 461	23, 536, 300	331, 593
Omaha	....	....	18, 554, 591	726, 444	....	....	....	....
Chicago	....	....	870, 702	102, 343	....	....	....	....
Montana and Idaho	....	....	4, 578, 609	119, 300	17, 000	765	....	....
Oswegatchie	40, 000	4, 000	90, 600	7, 198	837, 712	262, 732	....	....
Newark	....	....	....	....	1, 122, 542	429, 520	....	....
Minnesota	....	....	80, 326	4, 143	....	....	....	....
New York	....	....	....	....	....	....	(*a*)	12, 004
Total from British Columbia	40, 000	4, 000	79, 278, 639	3, 189, 147	99, 212, 707	3, 064, 478	23, 926, 802	472, 056
From Chile at Newark	....	....	109, 954	5, 168	....	....	....	....
Chile at New York	....	....	(*a*)	158, 290	....	....	....	....
Honduras	....	....	(*a*)	1, 655	....	....	(*a*)	241, 563
Salvador	....	....	....	....	....	....	(*a*)	1, 746
Peru	....	....	(*a*)	379, 140	....	....	(*a*)	6, 076
England	....	....	(*a*)	354	....	....	(*a*)	104, 847
Costa Rica	....	....	(*a*)	100	....	....	....	....
British West Indies	....	....	....	....	....	....	(*a*)	168
Total	....	....	109, 954	544, 707	....	....	(*a*)	354, 400
Total imports	30, 242, 638	2, 590, 150	377, 865, 005	9, 845, 171	138, 115, 871	5, 718, 947	28, 881, 164	11, 210, 040

a No information furnished.

and Matte, and the Gold, Silver, Lead, and Copper Contained Therein Ended December 31, 1898.

Total value.	METALLIC CONTENTS OF THE IMPORTATION.								Total value.
	Gold.		Silver.		Lead.		Copper.		
	Ounces.	Value.	Ounces.	Value.	Pounds.	Value.	Pounds.	Value.	
$2, 828, 721	3, 085	$61, 694	1, 168, 180	$648, 888	3, 031, 437	$49, 219	32, 631, 546	$2, 068, 920	$2, 828, 721
396, 401	2, 062	43, 744	286, 877	160, 334	1, 318, 856	29, 531	2, 445, 316	162, 792	396, 401
1. 015, 524	13, 273	245, 894	1, 265, 380	598, 973	15, 575, 934	170, 657	....	....	1, 015, 524
3, 616, 802	15, 620	286, 806	4, 997, 507	2, 983, 394	18, 305, 179	336, 601	113, 476	10, 001	3, 616, 802
102, 338	733	15, 226	85, 443	47, 508	1, 262, 336	28, 035	167, 671	11, 569	102, 338
48, 616	....	....	66, 176	39, 062	419, 584	9, 554	....	....	48, 616
1, 310, 403	38, 694	799, 783	798, 671	464, 745	1, 603, 660	45, 875	....	....	1, 310, 403
1, 630, 925	2, 320	47, 743	2, 373, 843	1, 345, 508	11, 334, 687	143, 282	1, 018, 621	94, 392	1, 630, 925
414, 089	1, 395	26, 112	546, 517	343, 867	5, 036, 272	44, 019	910	91	414, 089
10, 371, 701	23, 875	477, 481	17, 051, 637	9, 894, 220	....	....	....	....	10, 371, 701
21, 735, 520	101, 057	2, 004, 483	28, 640, 231	16, 526, 499	57, 887, 945	856, 773	36, 377, 540	2, 347, 765	21, 735, 520
239, 525	5, 387	107, 889	141, 372	77, 883	....	....	536, 634	53, 753	239, 525
4, 821, 707	107, 927	2, 158, 519	2, 857, 479	1, 645, 065	23, 580, 702	540, 661	3, 839, 463	477, 462	4, 821, 707
726, 444	....	....	856, 709	505, 924	8, 956, 032	201, 848	876, 758	18, 672	726, 444
102, 343	....	....	143, 105	84, 092	861, 240	18, 251	....	....	102, 343
120, 065	3, 779	756	109, 664	64, 827	2, 662, 214	54, 398	837	84	120, 065
273, 930	10, 469	209, 376	40, 446	23, 745	....	....	408, 105	40, 809	273, 930
429, 520	6, 388	127, 848	350, 512	192, 762	....	....	1, 080, 415	108, 910	429, 520
4, 143	....	....	4, 016	2, 269	53, 500	1, 874	....	....	4, 143
12, 004	12	240	20, 459	11, 764	....	....	....	....	12, 004
6, 729, 681	133, 962	2, 604, 628	4, 523, 762	2, 608, 331	36, 113, 688	817, 032	6, 742, 212	699, 690	6, 729, 681
5, 168	25	524	7, 578	4, 547	13, 810	97	....	....	5, 168
158, 290	....	....	250, 446	158, 290	....	....	....	....	158, 290
243, 218	3, 221	64, 478	307, 229	178, 740	....	....	....	....	243, 218
1, 746	....	....	2, 910	1, 746	....	....	....	....	1, 746
385, 216	....	....	653, 621	385, 216	....	....	....	....	385, 216
105, 201	3, 753	75, 072	50, 986	30, 129	....	....	....	....	105, 201
100	....	....	167	100	....	....	....	....	100
168	8	168	....	....	....	....	....	....	168
899, 107	7, 007	140, 242	1, 272, 937	758, 768	13, 810	97	....	....	899, 107
29, 364, 308	242, 026	4, 749, 353	34, 436, 930	19, 893, 598	94, 015, 444	1, 673, 902	43, 119, 752	3, 047, 455	29, 364, 308

XXII.—Imports into the United States of Gold and Silver Ore, Bullion,
ber 31,

Customs districts.	GOLD.							
	Contained in—			Ore.	Bullion.		Coin.	
	Copper matte.	Lead bullion.	Silver-lead ore.		Ounces.	Value.	United States.	Foreign.
Alaska	...	...	...	...	440,337	$9,065,000	...	...
Arizona	$9,767	$381	$51,546	$594,867	52,918	1,058,356	...	...
Baltimore	...	...	...	...	...	...	...	$43,717
Bangor	...	...	...	...	13,785	254,140	$1,137	125,241
Boston and Charlestown.	...	...	...	...	6,838	132,715	483,918	24,332
Brazos Santiago	...	...	...	...	...	...	...	...
Buffalo Creek	...	...	...	...	107	2,000	...	...
Champlain	...	...	...	...	...	...	4,628,875	430,669
Chicago	...	...	...	...	...	...	...	...
Corpus Christi	13,914	28,429	1,401	...	23,437	467,265	225,555	7,726
Detroit	...	...	...	...	341	5,696	125	...
Galveston	...	15,226	...	...	...	...	...	...
Minnesota	...	...	...	...	...	...	...	...
Mobile	...	...	...	...	113	1,608	20,121	8,019
Montana and Idaho	234	...	522	...	...	...	...	...
Newark	117,208	36,752	524	...	...	...	...	...
New Orleans	...	...	...	...	15,482	252,243	4,820	...
New York	...	617,361	78	12,291	1,631,845	33,618,636	31,766,859	32,647,330
Niagara	...	107,889	...	...	1,834	33,040	751,000	...
Omaha	...	...	...	...	...	...	...	...
Oswegatchie	209,360	...	16	...	...	...	...	...
Paso del Norte	...	...	286,806	...	8,589	171,762	...	2,937
Pensacola	...	...	...	...	...	...	...	...
Perth Amboy	...	45,153	2,590	...	...	...	...	...
Philadelphia	...	...	...	100	...	...	...	731,093
Puget Sound	766,487	576,320	815,712	...	504	9,500	...	...
San Diego	...	...	...	27,145	1,459	25,110	...	...
San Francisco	...	...	799,783	...	113,618	2,405,697	292,786	32,986,583
Saluria	...	245,894	...	70	3,447	71,448	1,108	...
Vermont	...	...	...	1,000	...	...	...	...
Total	1,116,970	1,673,405	1,958,978	635,473	2,314,804	47,574,216	38,176,304	67,007,647

AND COIN BY CUSTOMS DISTRICTS, DURING THE CALENDAR YEAR ENDED DECEM-
1898.

Total.	SILVER.								Total.
	Contained in—			Ore.	Bullion.		Coin.		
	Copper matte.	Lead bullion.	Silver-lead ore.		Ounces.	Value.	United States.	Foreign.	
$9,086,500	....	....	....	....	....	....	$100	....	$100
1,714,917	....	$15,925	$632,963	$209,166	530,443	$294,578	....	....	1,152,632
43,717	....	....	....	....	....	....	....	....	....
380,518	....	....	....	....	....	....	15,494	$523	16,017
640,965	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	5,805	5,805
2,000	....	....	....	....	....	....	....	....	....
5,059,544	....	....	....	....	....	....	36,389	6,140	42,529
....	....	....	84,092	....	....	....	....	....	84,092
744,290	$42,452	93,997	23,885	....	209,452	118,219	....	1,187,496	1,466,049
5,821	....	....	....	....	144	98	11,405	....	11,503
15,226	....	47,508	....	....	....	....	....	....	47,508
....	....	....	2,269	....	....	....	....	....	2,269
29,748	....	....	....	....	....	....	686	15,200	15,886
756	447	....	64,380	....	....	....	....	....	64,827
154,484	137,847	398,782	4,547	....	....	....	....	....	541,176
257,063	....	....	....	....	....	....	4,319	240,682	245,001
98,662,555	....	9,793,233	866,972	....	793,303	449,767	33,820	774,558	11,918,350
891,929	....	77,883	....	....	2,571	1,500	13,000	....	92,383
....	....	40,701	465,223	....	....	....	....	....	505,924
209,376	12,563	....	11,182	....	....	....	....	....	23,745
461,505	....	....	2,983,394	....	1,428,968	866,070	....	2,961,057	6,810,521
....	....	....	....	....	....	....	....	1,500	1,500
47,743	....	1,317,865	27,643	....	....	....	....	....	1,345,508
731,193	....	....	....	....	....	....	....	1,136	1,136
2,168,019	31,250	233,231	1,419,646	....	....	....	2,100	....	1,686,227
52,255	....	....	....	....	....	....	....	....	....
36,484,849	....	....	464,745	....	2,118,165	1,452,367	....	355,364	2,272,476
318,520	....	598,973	....	1,284	63,953	30,161	....	46,902	677,320
1,000	....	....	....	....	....	....	....	....	....
158,142,993	224,559	12,618,098	7,050,941	210,450	5,146,999	3,212,760	117,313	5,596,363	29,030,484

XXIII.—IMPORTS INTO THE UNITED STATES OF GOLD AND SILVER ORE, BULLION,

Countries.	GOLD.							
	Contained in—			Ore.	Bullion.		Coin.	
	Copper matte.	Lead bullion.	Silver-lead ore.		Ounces.	Value.	United States.	Foreign.
Great Britain	....	$75, 072	....	$915	1, 468, 347	$30,251,199	$15,310,353	$13,093,526
Germany	....	....	....	....	22, 324	459, 974	2, 066, 627	5, 901, 449
France	....	....	....	....	121, 490	2, 503, 030	13, 078, 646	11, 912, 562
China	....	....	....	....	....	....	....	88, 135
Hongkong	....	....	....	....	....	....	....	....
Japan	....	....	....	....	....	....	17, 314	6, 730, 512
British Australasia	....	....	....	....	60, 349	1, 254, 689	....	26, 167, 171
Italy	....	....	....	....	....	....	....	....
Netherlands	....	....	....	....	1, 281	26, 400	....	....
Nova Scotia, New Brunswick	....	....	....	....	20, 623	386, 855	1, 137	125, 441
Ontario and Quebec	$209, 360	....	$16	1, 000	2, 282	40, 736	5, 380, 000	430, 669
Newfoundland	....	....	....	....	....	....	....	300
British Columbia	883, 033	695, 985	816, 234	....	18, 990	406, 942	....	....
Northwest Territory	....	....	....	....	440, 337	9, 065, 000	....	....
Mexico	24, 577	837, 780	1, 142, 126	632, 242	124, 702	2, 548, 466	315, 169	20, 201
Central American States:								
Costa Rica	....	....	....	....	2, 123	42, 775	2, 000	2, 476
Guatemala	....	....	....	....	86	1, 860	450	....
Honduras	....	64, 400	78	1, 216	4, 137	84, 954	60	1, 664
Nicaragua	....	....	....	....	16, 034	265, 117	18, 550	8, 197
Salvador	....	....	....	....	34	700	5, 613	....
British Honduras	....	....	....	....	668	12, 640	24, 703	7, 210
British West Indies	....	168	....	....	51	1, 059	35, 355	40, 211
Danish West Indies	....	....	....	....	....	....	7, 598	2, 111
Dutch West Indies	....	....	....	....	72	1, 471	73, 089	83, 907
French West Indies	....	....	....	....	....	....	1, 557	2, 064
Haiti	....	....	....	....	687	14, 125	117, 166	537
Santo Domingo	....	....	....	....	28	562	13, 431	255
Cuba	....	....	....	....	707	14, 555	1, 299, 705	778, 343
Porto Rico	....	....	....	....	....	8	42, 280	6, 865
South American States:								
Chile	....	....	524	....	....	....	3, 756	450, 822
Ecuador	....	....	....	....	21	433	....	12
Peru	....	....	....	....	....	....	....	208
Colombia	....	....	....	100	8, 223	169, 110	17, 325	3, 075
Venezuela	....	....	....	....	512	10, 519	145, 938	149, 580
Azores and Madeira Islands	....	....	....	....	....	....	18, 277	....
Bermuda	....	....	....	....	....	....	115	....
British Guiana	....	....	....	....	338	6, 763	....	....
Dutch Guiana	....	....	....	....	207	4, 274	....	....
Miquelon, Langley, etc	....	....	....	....	....	....	90	144
Jamaica	....	....	....	....	....	....	....	....
Gibraltar	....	....	....	....	....	....	....	....
French Oceanica	....	....	....	....	....	....	....	....
Hawaii	....	....	....	....	....	....	180, 000	....
Total	1, 116, 970	1, 673, 405	1, 958, 978	635, 473	2, 314, 804	47, 574, 216	38, 176, 304	67, 007, 647

AND COIN, BY COUNTRIES, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

Total.	SILVER.								
	Contained in—			Ore.	Bullion.		Coin.		Total.
	Copper matte.	Lead bullion.	Silver-lead ore.		Ounces.	Value.	United States.	Foreign.	
$58,731,065	....	$29,775	$354	....	49,540	$29,724	$665	$3,603	$64,121
8,428,050	....	....	....	....	....	....	895	3,115	4,010
27,494,238	....	....	....	....	....	....	3,907	21,000	24,907
88,135	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	2,100	....	2,100
6,747,826	....	....	....	....	....	....	....	18,000	18,000
27,421,860	....	....	....	....	11,310	6,786	....	....	6,786
....	....	....	....	....	....	....	708	1	709
26,400	....	....	....	....	....	....	....	....	....
513,433	....	....	....	....	....	....	15,494	523	16,017
6,061,781	$12,563	....	11,182	....	2,715	1,598	57,294	6,140	88,777
300	....	....	....	....	....	....	257	120	377
2,802,194	169,544	414,668	2,000,374	....	....	....	3,500	....	2,588,086
9,065,000	....	....	....	....	....	....	100	....	100
5,520,561	42,452	11,988,670	4,495,377	$210,450	4,639,042	2,929,297	77	4,523,846	24,190,169
47,251	....	....	100	....	....	....	....	13,508	13,608
2,310	....	....	....	....	11,000	7,500	....	17,797	25,297
152,372	....	177,163	1,577	....	400,433	219,094	5	48,777	446,616
291,864	....	....	....	....	69	41	284	223,625	223,950
6,313	....	1,746	....	....	4,200	2,352	400	31,733	36,231
44,553	....	....	....	....	....	....	5,004	197,341	202,345
76,793	....	....	....	....	24	13	5,865	15,541	21,419
9,709	....	....	....	....	....	....	2,593	3,492	6,085
158,467	....	....	....	....	231	126	1,293	3,846	5,265
3,621	....	....	....	....	....	....	16	3,757	3,773
131,828	....	....	....	....	1,494	807	3,601	145,361	149,769
14,248	....	....	....	....	....	....	343	109,103	109,446
3,092,603	....	....	....	....	4,786	2,748	484	6,986	10,218
49,153	....	....	....	....	....	....	6,344	1,625	7,969
455,102	....	....	162,837	....	....	....	....	....	162,837
445	....	....	....	....	521	311	12	69	392
208	....	6,076	379,140	....	16,634	9,980	....	4,120	399,316
189,610	....	....	....	....	4,995	2,380	1,834	175,582	179,796
306,037	....	....	....	....	....	....	3,891	13	3,904
18,277	....	....	....	....	....	....	190	....	190
115	....	....	....	....	....	....	....	852	852
6,763	....	....	....	....	....	....	....	....	....
4,274	....	....	....	....	5	3	....	....	3
234	....	....	....	....	....	....	3	681	684
....	....	....	....	....	....	....	....	1,500	1,500
....	....	....	....	....	....	....	154	....	154
....	....	....	....	....	....	....	....	14,706	14,706
180,000	....	....	....	....	....	....	....	....	....
158,142,993	224,559	12,618,098	7,050,941	210,450	5,146,999	3,212,760	117,313	5,596,363	29,030,484

XXIV.—Exports of Domestic Gold and Silver Ore Bullion and Coin dar Year ended

Customs districts.	GOLD.								Total.
	Contained in—		Ore.	United States mint or assay office bars.		Other bullion.		Coin.	
	Base bullion.	Copper matte.	Value.	Ounces.	Value.	Ounces.	Value.		
Alaska				2	$42				$42
Bangor						16	$271	$50	321
Boston and Charlestown		$5							5
Buffalo Creek						93	1,787		1,787
Champlain								3,149,275	3,149,275
Corpus Christi									
Galveston									
Memphremagog							10		10
Niagara						3,043	52,253	267,945	320,198
New York	$72,441	9,150	$100			3,070	62,700	766,499	910,890
Omaha									
Paso del Norte									
Puget Sound								102,211	102,211
Saluria								180	180
San Francisco						195	4,200	807,426	811,626
Vermont				5	80	5	84		164
Total	72,441	9,155	100	7	122	6,422	121,305	5,093,586	5,296,709

XXV.—Exports of Domestic Gold and Silver Ore Bullion and Coin December

Countries to which exported.	GOLD.								Total.
	Contained in—		Ore.	United States mint or assay office bars.		Other bullion.		Coin.	
	Base bullion.	Copper matte.	Value.	Ounces.	Value.	Ounces.	Value.		
Belgium									
France									
Germany	$3,550	$9,150							$12,700
Great Britain—England	68,891		$100			3,070	$62,700	$3,850	135,541
Dominion of Canada:									
Quebec and Ontario		5		5	$80	3,157	54,405	3,417,270	3,471,760
British Columbia				3	42			102,211	102,253
Mexico								9,180	9,180
Haiti								302,576	302,576
Santo Domingo								152,718	152,718
Porto Rico								19,200	19,200
Cuba								18,500	18,500
British West Indies								51,300	51,300
Dutch West Indies								900	900
Central American States:									
Costa Rica									
Guatemala								19,235	19,235
Honduras									
San Salvador								20,660	20,660
Nicaragua								3,000	3,000
British Honduras								34,000	34,000
South American States:									
Brazil								375	375
Colombia								20,000	20,000
Venezuela								144,400	144,400
Miquelon, Langley, etc									
British Africa								530	530
British East Indies									
China									
Hongkong						195	4,200	71,466	75,666
Hawaiian Islands								702,215	702,215
Total	72,441	9,155	100	8	122	6,422	121,305	5,093,586	5,296,709

FROM CERTAIN CUSTOMS DISTRICTS OF THE UNITED STATES DURING THE CALEN-
DECEMBER 31, 1898.

SILVER.								
Contained in—		Ore.	United States mint or assay office bars.		Other bullion.		Coin.	Total.
Base bullion.	Copper matte.	Value.	Ounces.	Value.	Ounces.	Value.		
....	....	....	....	....	....	....	....	....
....	....	....	....	....	50	$30	....	$30
....	....	....	....	....	....	....	$8,000	8,000
....	....	....	....	....	20,345	12,348	....	12,348
....	....	....	....	....	....	....	....	....
....	....	....	....	....	883,260	483,905	....	483,905
....	....	$100	....	....	....	....	....	100
....	....	....	....	....	286	227	400	627
....	....	....	28,145	$14,260	60,059	32,075	2,008	48,343
$112,699	$10,701	....	31,711	18,300	75,507,400	43,722,909	76,947	43,941,556
....	....	50,101	....	....	....	....	....	50,101
....	....	....	315,555	176,711	626,274	350,668	....	527,379
....	....	....	....	....	....	....	26,368	26,368
....	....	....	....	....	126,202	83,964	....	83,964
....	....	....	....	....	4,790,749	2,678,678	156,500	2,835,178
....	....	....	2,897	1,819	....	....	....	1,819
112,699	10,701	50,201	378,308	211,090	82,014,625	47,364,804	270,223	48,019,718

FROM THE UNITED STATES, BY COUNTRIES, DURING THE CALENDAR YEAR ENDED
31, 1898.

SILVER.								
Contained in—		Ore.	United States mint or assay office bars.		Other bullion.		Coin.	Total.
Base bullion.	Copper matte.	Value.	Ounces.	Value.	Ounces.	Value.		
....	....	$100	....	....	....	....	....	$100
....	....	....	....	....	2,091,991	$1,208,122	....	1,208,122
$250	$1,176	....	....	....	....	....	$200	1,626
112,449	9,525	....	31,711	$18,300	73,245,113	42,419,150	....	42,559,424
....	....	....	31,042	16,079	80,454	44,453	2,008	62,540
....	....	50,101	....	....	286	227	26,768	77,096
....	....	....	315,555	176,711	1,660,976	932,696	....	1,109,407
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	5,867	5,867
....	....	....	....	....	....	....	70,880	70,880
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	136,926	76,678	....	76,678
....	....	....	....	....	100,602	57,000	....	57,000
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	8,000	8,000
....	....	....	....	....	2,100	1,400	....	1,400
....	....	....	....	....	758,711	419,400	....	419,400
....	....	....	....	....	604,500	300,578	....	300,578
....	....	....	....	....	3,332,966	1,905,100	....	1,905,100
....	....	....	....	....	....	....	156,500	156,500
112,699	10,701	50,201	378,308	211,090	82,014,625	47,364,804	270,223	48,019,718

XXVI.—Exports of Foreign Gold and Silver Bullion and Coin from the December

Customs districts.	GOLD.				Total.
	Base bullion.	Bullion.		Coin.	
		Ounces.	Value.		
Baltimore					
Bangor				$141	$141
Champlain				789, 793	789, 793
Corpus Christi					
Detroit					
Galveston	$15, 226				15, 226
New Orleans				1, 896	1, 896
New York		1, 500	$27, 000	10, 079, 248	10, 106, 248
Philadelphia					
Saluria					
San Francisco					
Vermont		4	83		83
Total	15, 226	1, 504	27, 083	10, 871, 078	10, 913, 387

XXVII.—Exports of Foreign Gold and Silver Bullion and Coin from December

Countries to which exported.	GOLD.				Total.
	Base bullion.	Bullion.		Coin.	
		Ounces.	Value.		
France				$8, 000	$8, 000
Germany					
Great Britain—England	$15, 226	1, 500	$27, 000	410	42, 636
Dominion of Canada:					
Nova Scotia				141	141
Ontario and Quebec		4	83	789, 793	789, 876
Mexico					
Central American States:					
Guatemala					
Honduras				293	293
British Honduras				1, 896	1, 896
Cuba				9, 909, 213	9, 909, 213
Porto Rico					
Santo Domingo				5, 272	5, 272
British West Indies					
Danish West Indies				12, 004	12, 004
Dutch West Indies					
Bermuda				118, 153	118, 153
South American States:					
Brazil					
Colombia					
Peru				19, 540	19, 540
Venezuela				6, 363	6, 363
Japan					
Hongkong					
Hawaiian Islands					
French Oceanica					
Total	15, 226	1, 504	27, 083	10, 871, 078	10, 913, 387

United States, by Customs Districts, during the Calendar Year ended 31, 1898.

SILVER.				Total.
Base bullion.	Bullion. Ounces.	Bullion. Value.	Coin.	
			$1,150	$1,150
			1,660	1,660
			75,285	75,285
			2,000	2,000
			535	535
$47,508				47,508
			3,314,975	3,314,975
			2,212	2,212
			50,061	50,061
			2,381,531	2,381,531
	144	$119		119
47,508	144	119	5,829,409	5,877,036

the United States, by Countries, during the Calendar Year ended 31, 1898.

SILVER.				Total.
Base bullion.	Bullion. Ounces.	Bullion. Value.	Coin.	
			$38,850	$38,850
			50,282	50,282
$47,508			2,571,903	2,619,411
			1,594	1,594
	144	$119	75,886	76,005
			52,061	52,061
			120,132	120,132
			8,456	8,456
			300	300
			600	600
			458,875	458,875
			34,586	34,586
			360	360
			67,353	67,353
			4,397	4,397
			11,300	11,300
			1,380	1,380
			2,302,519	2,302,519
			25,704	25,704
			2,871	2,871
47.508	144	119	5,829,409	5,877,036

XXVIII.—RECAPITULATION OF IMPORTS AND EXPORTS OF THE PRECIOUS METALS DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1898.

Description.	Imports.	Exports.	Excess.	
			Imports.	Exports.
GOLD.				
Contained in—				
Copper matte	$1,116,970	$9,155	$1,107,815	
Lead bullion, foreign	1,673,405	15,226	1,658,179	
Lead bullion, domestic		72,441		$72,441
Silver-lead ore	1,958,978		1,958,978	
Ore:				
Domestic		100		100
Foreign	635,473		635,473	
Bars, mint or assay office		122		122
Bullion:				
Foreign	47,574,216	27,083	47,547,133	
Domestic		121,305		121,305
Coin:				
Foreign	67,007,647	10,871,078	56,136,569	
Domestic	38,176,304	5,093,586	33,082,718	
Total	158,142,993	16,210,096	142,126,865	193,968
Excess of imports			141,932,897	
SILVER.				
Contained in—				
Copper matte	224,559	10,701	213,858	
Lead bullion, foreign	12,618,098	47,508	12,570,590	
Lead bullion, domestic		112,699		112,699
Silver-lead ore	7,050,941		7,050,941	
Ore:				
Domestic		50,201		50,201
Foreign	210,450		210,450	
Bars, mint or assay office		211,090		211,090
Bullion:				
Foreign	3,212,760	119	3,212,641	
Domestic		47,364,804		47,364,804
Coin:				
Foreign	5,596,363	5,829,409		233,046
Domestic	117,313	270,223		152,910
Total	29,030,484	53,896,754	23,258,480	48,124,750
Excess of exports				24,866,270

XXIX.—COINAGE OF NATIONS.

Countries.	1896.		1897.		1898.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
United States	$47, 053, 060	$23, 089, 899	$76, 028, 485	$18, 487, 297	$77, 985, 758	$23, 034, 033
Mexico	565, 985	21, 092, 397	417, 176	19, 608, 459	599, 442	22, 066, 445
Great Britain	23, 402, 560	6, 470, 352	8, 654, 764	4, 583, 688	28, 204, 336	6, 200, 237
Australasia	34, 602, 786		37, 289, 873		39, 453, 387	
India[a]		5, 579, 692		25, 227, 996		26, 686, 134
France	21, 719, 880		42, 726, 251	8, 492	34, 224, 022	7, 720, 000
Germany	25, 133, 476	2, 718, 368	30, 145, 656		42, 675, 087	3, 704, 600
Russia[b]	10, 284	30, 985, 566	[c]170, 618, 508	[c]35, 393, 252	[c]135, 788, 949	[c]21, 373, 189
Austria-Hungary[d]	33, 898, 739	7, 904, 911	33, 640, 553	5, 722, 330	14, 367, 363	1, 369, 352
Lichtenstein					112	
Eritrea		771, 800				
Spain		5, 386, 942	2, 890, 407	6, 724, 106		
Italy			147, 965	307, 957		528, 650
San Marino				28, 950		7, 720
Servia				1, 014, 624		143, 399
Japan	1, 125, 000	13, 399, 062	31, 600, 410	4, 266, 028	16, 002, 641	8, 159, 857
Portugal		1, 900, 800		864, 000		1, 100, 844
Netherlands		428, 130		964, 800	437, 259	562, 800
Norway		67, 000		147, 400		147, 400
Sweden		109, 007		535, 319	1, 680, 022	795, 072
Denmark				135, 513	267, 046	53, 800
Belgium						96, 500
Switzerland	1, 544, 000	1, 930	1, 544, 000		1, 544, 000	424, 600
Turkey	50, 114	7, 473	920, 962	440, 435	1, 388, 586	442, 721
Arabia						1, 022
Egypt		562, 770		519, 830		856, 114
Abyssinia		376		720, 133		401, 440
Persia					85, 200	5. 964, 000
Liberia		12, 000				
Hongkong		7, 835, 617		23, 836, 427		3, 150, 000
China		8, 638, 630		10, 636, 955		
Indo-China		12, 542, 772		2, 773, 428		4, 589, 800
Tunis	232	347	632, 500	347	579, 232	347
Canada		140, 000		65, 964		217, 000
Newfoundland		98, 000				39, 804
Costa Rica			465, 433			
Argentina	982, 715					
Bolivia		1, 508, 087		1, 189, 282		1, 348, 094
Peru		2, 704, 831		449, 807	195, 161	120, 000
Colombia				552, 480		
Ecuador		169, 798		623, 687		
Chile	5, 424, 686	677, 877	49			
British Honduras				20, 000		
Santo Domingo				606, 071		1, 415, 102
Porto Rico		167, 240				
German East Africa		392		127, 440		174, 900
Monaco	386, 000					
Straits Settlements		453, 554		134, 000		452, 000
Congo State		193, 000				
Morocco		598, 655		873, 509		606, 918
Mauritius				50, 000		
Ceylon				150, 000		
Siam		3, 322, 752			302	5, 329, 042
Total	195, 899, 517	159, 540, 027	437, 722, 992	167, 790, 006	395, 477, 905	149, 282, 936

---

[a] Rupee calculated at coining rate, $0.4737.

[b] Silver ruble calculated at coining rate, $0.7718.

[c] Ruble calculated at coining rate, $0.514566. Ukase January 3, 1897.

[d] Florin calculated at coining rate, $0.4052, under the coinage act of August 2, 1892.

XXX.—WORLD'S PRODUCTION OF GOLD AND SILVER FOR CALENDAR YEARS 1896, 1897, AND 1898.[a]

Countries.	GOLD.			SILVER.			
	Kilos (fine).	Ounces (fine).	Value.	Kilos (fine).	Ounces (fine).	Coining value.	Commercial value.
1896.							
North America:							
United States	79,880	2,568,132	$53,088,000	1,830,347	58,834,800	$76,069,200	$39,654,700
Mexico	9,780	314,437	[b] 6,500,000	1,422.315	45,718,982	59,111,400	30,814,600
Canada and Newfoundland	4,238	136,274	2,817,000	99,718	3,205,343	4,144,300	2,160,400
Africa	67,080	2,156 609	44,581,100				
Australasia	65,868	2.117,673	43,776,200	380,746	12,238,700	15,823,800	8,248,900
Europe:							
Russia	32,404	1,041,794	21,535,800	10,457	336,127	434,600	226,500
Austria-Hungary	3.239	104,137	2,152,700	57,986	1,863,921	2,409,900	1,256,300
Germany	1.714	[c] 55,104	1,139,100	183,252	5,890,500	7,616,000	3,970,200
Norway				5,046	162,198	209,700	109,300
Sweden	114	3,681	76,100	554	17,822	23,000	12,000
Italy	211	6,782	140,200	27,245	875,763	1,132,300	590,300
Spain				179,795	5,779,357	7,472,300	3,895,300
Portugal	28	896	18,500				
Greece				32,000	1,028,609	1,329,900	693,300
Turkey	11	353	7,300	7,007	225.225	291,200	151,800
Servia	20	643	13,300	570	18,322	23,700	12,300
France				16,353	525.628	679,600	354,300
Great Britain	37	1,188	24,600	8,169	262,567	339,500	177,000
South America:							
Argentina	474	15 238	[e] 315,000	10,210	328,170	[e] 424,300	221,200
Bolivia	377	12,110	[b] 250,300	198,302	6,374,240	[b] 8,241,400	4,296,200
Chile	919	29,559	[b] 611,000	100.688	3,236,536	[b] 4,184,600	2,181,400
Colombia	3,310	106,428	2,200,100	105,991	3,407,004	4,405.000	2,296,300
Ecuador	200	6,429	132,900	240	7,734	[f] 10,000	5,200
Brazil	1,506	48,426	1,001.100				
Venezuela	1,427	45,882	948,500				
Guiana (British)	3,330	107,059	[e] 2,213,100				
Guiana (Dutch)	725	23,309	481,800				
Guiana (French)	3,171	101,945	2,107,400				
Peru	175	5,639	116,600	119,682	3,847,078	4,974,000	2,592,900
Uruguay	50	1,625	33,600				
Central America	560	18,008	[b] 372,300	25,158	808,676	[b] 1,045,600	545,000
Asia:							
Japan	962	30,927	639,300	64,337	2,068,068	2,673,900	1,393,900
China	12,125	389,836	[b] 8,058,600				
Korea	1,086	34,915	721,800				
India (British)	9,224	296,565	6,130,500				
East Indies (British)							
East Indies (Dutch)	72	2,311	47,800				
Total	304,317	9,783,914	202,251,600	4,886,168	157,061,370	203,069,200	105,859,300

1897.							
North America:							
United States	86,312	2,774,935	57,363,000	1,675,582	53,860,000	69,637,200	32,316,000
Mexico	11,285	362,812	*b* 7,500,000	1,676,925	53,903,180	69,693,000	32,341,900
Canada and Newfoundland	9,163	294,582	6,089,500	172,923	5,558,446	7,186,700	3,335,100
Africa	88,111	2,832,776	58,558,700				
Australasia	79,244	2,547,704	52,665,700	369,523	11,878,000	15,357,400	7,126,800
Europe:							
Russia	34,977	1,124,511	23,245,700	8,856	284,625	368.000	170,800
Austria-Hungary	3,364	108,147	2,235,600	61,297	1,970,332	2,547,500	1,182,200
Germany	2,066	*c* 66,424	1,373,100	171,047	5,498,135	7,108.700	3,298,900
Norway				5,260	169,078	218,600	101,400
Sweden	127	4,083	84,400	645	20,728	26,800	12,400
Italy	292	9,404	194,400	22,933	737,163	953,100	442,300
Spain	57	1,833	37,900	185,352	5,957,965	7,703,200	3,574,800
Portugal	16	501	10,400	73	2,349	3,000	1,400
Greece				37,431	1,203,184	1,555,600	721,900
Turkey	11	*d* 353	7,300	7,007	*d* 225,225	291,200	135,100
Servia	20	*d* 643	13,300	570	*d* 18,322	23,700	11,000
France				16.890	542,913	701,900	325,700
Great Britain	53	1,698	35,100	7,221	232,108	300,100	139,300
South America:							
Argentina	207	6,661	137,700	11,930	383,479	495,800	230,100
Bolivia	517	16,617	*b* 343,500	255,244	8,204,568	*b* 10,607,900	4,922,700
Chile	513	16,482	*b* 340,700	80,637	2,591,998	*b* 3,351,300	1,555,200
Colombia	3,351	107,740	2,227,200	157,022	5,047,328	6,525,800	3,028,400
Ecuador	290	*d* 6,429	132,900	240	7,734	*f* 10,000	4,600
Brazil	1,812	58,251	1,204,200				
Venezuela	1,591	51,151	1,057,400				
Guiana (British)	3,140	100,945	2,086,700				
Guiana (Dutch)	906	29,127	602,100				
Guiana (French)	2,311	74,299	1,535,900				
Peru	945	30,380	628,000	101,997	3,278,602	4,239,000	1,967,200
Uruguay	58	1,862	38,500				
Central America	701	22,535	*b* 465,800	25,258	811,892	*b* 1,049,700	487.100
Asia:							
Japan	1,044	33,555	693,600	52,446	1,685,818	2,179,600	1,011.500
China	13,291	427,321	*b* 8,833,500				
Korea	1,535	49,350	1,020,200				
India (British)	10,905	350,585	7,247,200				
East Indies (British)	1,033	33,206	686,400				
East Indies (Dutch)	175	5,630	116,400				
Total	359,333	11,552,532	238,812,000	5,104,309	164,073,172	212,134,800	98,443,800

a Kilogram of gold, $664.60; kilogram of silver, $41.56, coining rate in United States silver dollars. Fine ounce of gold, $20.671834 +; fine ounce of silver, $1.292929 +, coining rate in United States silver dollars

b Estimate of the Bureau of the Mint.

c Gold separated from silver in Germany, whose gold contents do not figure in the statistics of any other country.

d Official figures for 1896.

e Official figures for 1895

f Official figures for 1893.

XXX.—World's Production of Gold and Silver for Calendar Years 1896, 1897, and 1898—Continued.

Countries.	GOLD.			SILVER.			
	Kilos (fine).	Ounces (fine).	Value.	Kilos (fine).	Ounces (fine).	Coining value.	Commercial value.
1898.							
North America:							
United States	96, 995	3, 118, 398	$64, 463, 000	1, 693, 563	54, 438, 000	$70, 384, 500	$32, 118, 400
Mexico	12, 790	411, 187	*a* 8, 500. 000	1, 765, 116	56, 738, 000	73, 358, 200	33, 475, 400
Canada and Newfoundland	20, 822	*b* 669, 445	13, 838, 700	138, 512	4, 452, 333	5, 756, 500	2, 626, 900
Africa	121, 017	3, 890, 704	80, 428, 000				
Australasia	97, 594	3, 137, 644	64, 860, 800	373, 994	12, 021, 682	15, 543, 200	7, 092, 800
Europe:							
Russia	38, 314	1, 231, 791	25, 463, 400	8, 664	278, 492	360, 100	164, 300
Austria-Hungary	2, 798	89, 954	1, 859, 500	56, 443	1, 814, 294	2, 345, 700	1, 070, 400
Germany	111	3, 561	73, 600	173, 329	5, 571, 516	7, 203, 600	3, 287. 200
Norway				5, 392	173, 321	224, 100	102, 300
Sweden	126	4, 044	83, 600	2, 033	65. 345	84, 500	38, 600
Italy	250	8, 027	165, 900	25, 028	804, 512	1, 040, 200	474, 700
Spain	57	*c* 1, 833	37, 900	185, 352	*c* 5, 957, 965	7, 703, 200	3, 515, 200
Portugal	16	*c* 501	10, 400	73	*c* 2, 349	3, 000	1, 400
Greece				30, 530	981, 356	1, 268, 800	579, 000
Turkey	11	*d* 353	7, 300	7, 007	*d* 225, 225	291, 200	132, 900
Servia	20	*d* 643	13, 300	570	*d* 18, 322	23, 700	10, 800
France				16, 890	*c* 542, 913	701, 900	320, 300
Great Britain	10	321	6, 600	6, 575	211, 347	273, 300	124, 700
South America:							
Argentina	207	6, 661	*c* 137, 700	11, 930	383, 479	*c* 495, 800	226, 300
Bolivia	517	16, 617	*c* 343, 500	255, 244	8, 204, 568	*c* 10, 607, 900	4, 840, 700
Chile	513	16, 482	*c* 340, 700	80, 637	2, 591, 998	*c* 3, 351, 300	1, 529, 300
Colombia	3, 405	109, 483	2, 263, 200	170, 598	5, 483, 717	7, 090, 100	3, 235, 400
Ecuador	59	1, 911	39, 500	240	7, 734	*c* 10, 000	4, 600
Brazil	2, 383	76, 613	1, 583, 700				
Venezuela	1, 591	*c* 51, 151	1, 057, 400				
Guiana (British)	3, 082	99, 105	2, 048, 700				
Guiana (Dutch)	856	27. 532	569, 100				
Guiana (French)	2, 474	79, 547	1, 644, 400				
Peru	945	*c* 30, 380	628, 000	60, 703	1, 951, 240	2. 522, 800	1, 151, 200
Uruguay	58	*c* 1, 862	38, 500				
Central America	713	22, 917	*a* 473, 700	22, 275	716, 008	*a* 925, 700	422. 400
Asia:							
Japan	1, 190	38, 253	790, 800	51, 638	1, 659, 856	2, 146, 100	979, 300
China	9, 146	294, 059	*a* 6, 078, 700				
Korea	1, 535	*c* 49. 350	1, 020, 200				
India (British)	11, 709	376, 431	7, 781, 500				
East Indies (British)	994	31, 973	*c* 660, 900				
East Indies (Dutch)	175	5, 630	*c* 116. 400				
Total	432, 483	13, 904, 363	287, 428, 600	5, 142, 336	165, 295, 572	213, 715. 400	97, 524, 500

a Estimate of the Bureau of the Mint.
b Newfoundland product for 1897 included.
c Official figures for 1897.
d Official figures for 1896.
e New Guinea product for 1897 included.

XXXI.—Coinage of the Mints of the United States from their Organization, 1792, to December 31, 1898.

Denomination.	Pieces.	Value.
GOLD.		
Double eagles	70, 589, 085	$1, 411, 781, 700. 00
Eagles	29, 390, 853	293, 908, 530. 00
Half eagles	47, 509, 512	237, 547, 560. 00
Three-dollar pieces (coinage discontinued, act of Sept. 26, 1890)	539, 792	1, 619, 376. 00
Quarter eagles	11, 551, 792	28, 879, 480. 00
Dollars (coinage discontinued, act of Sept. 26, 1890)	19, 499, 337	19, 499, 337. 00
Total gold	179, 080, 371	1, 993, 235, 983. 00
SILVER.		
Dollars (coinage discontinued under act of Feb. 12, 1873, and resumed under act of Feb. 28, 1878)	478, 276, 095	*a* 478, 276, 095. 00
Trade dollars	35, 965, 924	35, 965, 924. 00
Half dollars	277, 476, 927	138, 738, 463. 50
Half dollars, Columbian souvenir	5, 002, 105	2, 501, 052. 50
Quarter dollars	231, 348, 143	57, 837, 035. 75
Quarter dollars, Columbian souvenir	40, 023	10, 005. 75
Twenty-cent pieces (coinage discontinued, act of May 2, 1878)	1, 355, 000	271, 000. 00
Dimes	324, 569, 761	32, 456, 976. 10
Half dimes (coinage discontinued, act of Feb. 12, 1873)	97, 604, 388	4, 880, 219. 40
Three-cent pieces (coinage discontinued, act of Feb. 12, 1873)	42, 736, 240	1, 282, 087. 20
Total silver	1, 494, 374, 606	752, 218, 859. 20
MINOR.		
Five-cent pieces, nickel	322, 858, 236	16, 142, 911. 80
Three-cent pieces, nickel (coinage discontinued, act of Sept. 26, 1890)	31, 378, 316	941, 349. 48
Two-cent pieces, bronze (coinage discontinued, act of Feb. 12, 1873)	45, 601, 000	912, 020. 00
One-cent pieces, copper (coinage discontinued, act of Feb. 21, 1857)	156, 288, 744	1, 562, 887. 44
One-cent pieces, nickel (coinage discontinued, act of Apr. 22, 1864)	200, 772, 000	2, 007, 720. 00
One-cent pieces, bronze	924, 080, 164	9, 240, 801. 64
Half-cent pieces, copper (coinage discontinued, act of Feb. 21, 1857)	7, 985, 222	39, 926. 11
Total minor	1, 688, 963, 682	30, 847, 616. 47
Total coinage	3, 362, 418, 659	2, 776, 302, 458. 67

a Silver-dollar coinage under act of—

April 2, 1792			$8, 031, 238
Bland-Allison Act, February 28, 1878		$378, 166, 793	
Sherman Act, July 14, 1890, to October 31, 1893	$36, 087, 285		
From repeal of purchasing clause (November 1, 1893) of Sherman Act, to December 31, 1898	50, 912, 307		
		86, 999, 592	
March 3, 1891, recoinage of trade dollars		5, 078, 472	
			470, 244, 857
Total			478, 276, 095

XXXII.—Coinage of Fractional and Subsidiary Silver Coins, by Acts and Denominations, from 1792 to 1898.

Denomination.	1792 to 1853.	1853 to Feb. 12, 1873.	Feb. 12, 1873, to Dec. 31, 1898.	Total silver.
Dollars	$2, 506, 890. 00	$5, 524, 348. 00	$470, 244, 857. 00	$478, 276, 095. 00
Trade dollars			35, 965, 924. 00	35, 965, 924. 00
Total dollars	2, 506, 890. 00	5, 524, 348. 00	506, 210, 781. 00	514, 242, 019. 00
Half dollars	66, 280, 640. 50	32, 666, 832. 50	39, 790, 990. 50	138, 738, 463. 50
Half dollars, Columbian			2, 501, 052. 50	2, 501, 052. 50
Quarter dollars	3, 994, 040. 50	17, 879, 790. 50	35, 963, 204. 75	57, 837, 035. 75
Quarter dollars, Columbian			10, 005. 75	10, 005. 75
Twenty-cent pieces			271, 000. 00	271, 000. 00
Dimes	3, 890, 230. 10	4, 908, 520. 00	23, 658, 226. 00	32, 456, 976. 10
Half dimes	1, 825, 126. 40	3, 055, 093. 00		4, 880, 219. 40
Three-cent pieces	744, 927. 00	537, 160. 20		1, 282, 087. 20
Total subsidiary	76, 734, 964. 50	59, 047, 396. 20	102, 194, 479. 50	237, 976, 840. 20
Total silver	79, 241, 854. 50	64, 571, 744. 20	608, 405, 260. 50	752, 218, 859. 20

Fractional silver coinage, 1792 to 1853	$76, 734, 964. 50
Subsidiary silver coinage, 1853 to February 12, 1873	59, 047, 396. 20
Subsidiary silver coinage, February 12, 1873, to December 31, 1898	102, 194, 479. 50
Total	237, 976, 840. 20

XXXIII.—PRODUCTION OF GOLD AND SILVER IN

[From 1493 to 1885 is from a table of averages for certain periods, compiled by Dr. Adolph Soetbeer.

	Period.	GOLD.			
		Annual average for period.		Total for period.	
		Fine ounces.	Value.	Fine ounces.	Value.
1	1493-1520	186, 470	$3, 855, 000	5, 221, 160	$107, 931, 000
2	1521-1544	230, 194	4, 759, 000	5, 524, 656	114, 205, 000
3	1545-1560	273, 596	5, 656, 000	4, 377, 544	90, 492, 000
4	1561-1580	219, 906	4, 546, 000	4, 398, 120	90, 917, 000
5	1581-1600	237, 267	4, 905, 000	4, 745, 340	98, 095, 000
6	1601-1620	273, 918	5, 662, 000	5, 478, 360	113, 248, 000
7	1621-1640	266, 845	5, 516, 000	5, 336, 900	110, 324, 000
8	1641-1660	281, 955	5, 828, 000	5, 639, 110	116, 571, 000
9	1661-1680	297, 709	6, 154, 000	5, 954, 180	123, 084, 000
10	1681-1700	346, 095	7, 154, 000	6, 921, 895	143, 088, 000
11	1701-1720	412, 163	8, 520, 000	8, 243, 260	170, 403, 000
12	1721-1740	613, 422	12, 681, 000	12, 268, 440	253, 611, 000
13	1741-1760	791, 211	16, 356, 000	15, 824, 230	327, 116, 000
14	1761-1780	665, 666	13, 761, 000	13, 313, 315	275, 211, 000
15	1781-1800	571, 948	11, 823, 000	11, 438, 970	236, 464, 000
16	1801-1810	571, 563	11, 815, 000	5, 715, 627	118, 152, 000
17	1811-1820	367, 957	7, 606, 000	3, 679, 568	76, 063, 000
18	1821-1830	457, 044	9, 448, 000	4, 570, 444	94, 479, 000
19	1831-1840	652, 291	13, 484, 000	6, 522, 913	134, 841, 000
20	1841-1850	1, 760, 502	36, 393, 000	17, 605, 018	363, 928, 000
21	1851-1855	6, 410, 324	132, 513, 000	32, 051, 621	662, 566, 000
22	1856-1860	6, 486, 262	134, 083, 000	32, 431, 312	670, 415, 000
23	1861-1865	5, 949, 582	122, 989, 000	29, 747, 913	614, 944, 000
24	1866-1870	6, 270, 086	129, 614, 000	31, 350, 430	648, 071, 000
25	1871-1875	5, 591, 014	115, 577, 000	27, 955, 068	577, 883, 000
26	1876-1880	5, 543, 110	114, 586, 000	27, 715, 550	572, 931, 000
27	1881-1885	4, 794, 755	99, 116, 000	23, 973, 773	495, 582, 000
28	1886-1890	5, 461, 282	112, 895, 000	27, 306, 411	564, 474, 000
29	1891-1895	7, 882, 565	162, 947, 000	39, 412, 823	814, 736, 000
30	1896	9, 783, 914	202, 251, 600	9, 783, 914	202, 251, 600
31	1897	11, 552, 532	238, 812, 000	11, 552, 532	238, 812, 000
32	1898	13, 904, 363	287, 428, 600	13, 904, 363	287, 428, 600
	Total			459, 964, 760	9, 508, 317, 200

THE WORLD SINCE THE DISCOVERY OF AMERICA.

For the years 1886 to 1898 the production is the annual estimate of the Bureau of the Mint.]

SILVER.				PERCENTAGE OF PRODUCTION.				
Annual average for period.		Total for period.		By weight.		By value.		
Fine ounces.	Coining value	Fine ounces.	Coining value.	Gold.	Silver.	Gold.	Silver.	
1,511,050	$1,954,000	42,309,400	$54,703,000	11	89	66.4	33.6	1
2,899,930	3,740,000	69,598,320	89,986,000	7.4	92.6	55.9	4.1	2
10,017,940	12,952,000	160,287,040	207,240,000	2.7	97.3	30.4	69.6	3
9,628,925	12,450,000	192,578,500	248,990,000	2.2	97.8	26.7	73.3	4
13,467,635	17,413,000	269,352,700	348,254,000	1.7	98.3	22	78	5
13,596,235	17,579,000	271,924,700	351,579,000	2	98	24.4	75.6	6
12,654,240	16,361,000	253,084,800	327,221,000	2.1	97.9	25.2	74.8	7
11,776,545	15,226,000	235,530,900	304,525,000	2.3	97.7	27.7	72.3	8
10,834,550	14,008,000	216,691,000	280,166,000	2.7	97.3	30.5	69.5	9
10,992,085	14,212,000	219,841,700	284,240,000	3.1	96.9	33.5	66.5	10
11,432,540	14,781,000	228,650,800	295,629,000	3.5	96.5	36.6	63.4	11
13,863,080	17,924,000	277,261,600	358,480,000	4.2	95.8	41.4	58.6	12
17,140,612	22,162,000	342,812,235	443,232,000	4.4	95.6	42.5	57.5	13
20,985,591	27,133,000	419,711,820	542,658,000	3.1	96.9	33.7	66.3	14
28,261,779	36,540,000	565,235,580	730,810,000	2	98	24.4	75.6	15
28,746,922	37,168,000	287,469,225	371,677,000	1.9	98.1	24.1	75.9	16
17,385,755	22,479,000	173,857,555	224,780,000	2.1	97.9	25.3	74.7	17
14,807,004	19,144,000	148,070,040	191,444,000	3	97	33	67	18
19,175,867	24,703,000	191,758,675	247,930,000	3.3	96.7	35.2	64.8	19
25,090,342	32,440,000	250,903,422	324,400,000	6.6	93.4	52.9	47.1	20
28,488,597	36,824,000	142,442,986	184,169,000	18.4	81.6	78.3	21.7	21
29,095,428	37,618,000	145,477,142	188,092,000	18.2	81.8	78.1	21.9	22
35,401,972	45,772,000	177,009,862	228,861,000	14.4	85.6	72.9	27.1	23
43,051,583	55,663,000	215,257,914	278,313,000	12.7	87.3	70	30	24
63,317,014	81,864,000	316,585,069	409,322,000	8.1	91.9	58.5	41.5	25
78,775,602	101,851,000	393,878,009	509,256,000	6.6	93.4	53	47	26
92,003,944	118,955,000	460,019,722	594,773,000	5	95	45.5	54.5	27
108,911,431	140,815,000	544,557,155	704,074,000	4.8	95.2	44.5	55.5	28
157,581,331	203,742,000	787,906,656	1,018,708,000	4.8	95.2	44.4	55.6	29
157,061,370	203,069,200	157,061,370	203,069,200	5.9	94.1	49.9	50.1	30
164,071,172	212,134,800	164,073,172	212,134,800	6.6	93.4	52.9	47.1	31
165,295,572	213,715,400	165,295,572	213,715,400	7.8	92.2	57.3	42.7	32
....	....	8,486,494,641	10,972,431,400	5.1	94.9	46.4	53.6	

XXXIV.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1793 to 1795		$27, 950	$43, 535			
1796		60, 800	16, 995		$165. 00	
1797		91, 770	32, 030		4, 390. 00	
1798		79, 740	124, 335		1, 535. 00	
1799		174, 830	37, 255		1, 200. 00	
1800		259, 650	58, 110			
1801		292, 540	130, 030			
1802		150, 900	265, 880		6, 530. 00	
1803		89, 790	167, 530		1, 057. 50	
1804		97, 950	152, 375		8, 317. 50	
1805			165, 915		4, 452. 50	
1806			320, 465		4, 040. 00	
1807			420, 465		17, 030. 00	
1808			277, 890		6, 775. 00	
1809			169, 375			
1810			501, 435			
1811			497, 905			
1812			290, 435			
1813			477, 140			
1814			77, 270			
1815			3, 175			
1816						
1817						
1818			242, 940			
1819			258, 615			
1820			1, 319, 030			
1821			173, 205		16, 120. 00	
1822			88, 980			
1823			72, 425			
1824			86, 700		6, 500. 00	
1825			145, 300		11, 085. 00	
1826			90, 345		1, 900. 00	
1827			124, 565		7, 000. 00	
1828			140, 145			
1829			287, 210		8, 507. 50	
1830			631, 755		11, 350. 00	
1831			702, 970		11, 300. 00	
1832			787, 435		11, 000. 00	
1833			968, 150		10, 400. 00	
1834			3, 660, 845		293, 425. 00	
1835			1, 857, 670		328, 505. 00	
1836			2, 765, 735		1, 369, 965. 00	
1837			1, 035, 605		112, 700. 00	
1838		72, 000	1, 432, 940		117, 575. 00	
1839		382, 480	590, 715		67, 552. 50	
1840		473, 380	686, 910		47, 147. 50	
1841		631, 310	79, 165			
1842		815, 070	137, 890		7, 057. 50	
1843		754, 620	3, 056, 025		251, 365. 00	
1844		63, 610	1, 701, 650		16, 960. 00	
1845		261, 530	2, 085, 495		227, 627. 50	
1846		200, 950	1, 979, 710		53, 995. 00	
1847		8, 622, 580	4, 579, 905		74, 535. 00	
1848		1, 454, 840	1, 303, 875		22, 215. 00	
1849		6, 536, 180	665, 350		58, 235. 00	$688, 567
1850	$23, 405, 220	2, 914. 510	322, 455		632, 307. 50	481, 953
1851	41, 743, 100	1, 763, 280	1, 887, 525		3, 431, 870. 00	3, 317, 671
1852	41, 060, 520	2, 631, 060	2, 869, 505		2, 899, 202. 50	2, 045, 351
1853	25, 226, 520	2, 012, 530	1, 528, 850		3, 511, 670. 00	4, 076, 051
1854	15, 157, 980	542, 500	803, 375	$415, 854	1, 490, 645. 00	1, 639, 445
1855	7, 293, 320	1, 217, 010	585, 490	151, 665	588, 700. 00	758, 269
1856	6, 597, 560	604, 900	989, 950	78, 030	960, 600. 00	1, 762, 936
1857	8, 787, 500	166, 060	490, 940	62, 673	535, 325. 00	774, 789
1858	4, 234, 280	25, 210	75, 680	6, 399	118, 442. 50	117, 995
1859	871, 940	160, 930	84, 070	46, 914	98, 610. 00	168, 244
1860	11, 553, 400	117, 830	99, 125	21, 465	56, 687. 50	36, 668
1861	59, 529, 060	1, 132, 330	3, 199, 750	18, 216	3, 181, 295. 00	527, 499
1862	1, 842, 660	109, 950	22, 325	17, 355	280, 882. 50	1, 326, 865
1863	2, 855, 800	12, 480	12, 360	15, 117	75. 00	6, 250
1864	4, 085, 700	35, 800	21, 100	8, 040	7, 185. 00	5, 950
1865	7, 024, 000	40, 050	6, 475	3, 495	3, 862. 50	3, 725
Carried forward	261, 268, 560	35, 080, 900	50, 967, 775	845, 223	20, 996, 875. 00	17, 738, 228

NOTE.—Not susceptible of exact statement by years of actual date of coin, the registry of annual having been invariably completed within the year of the date of coin, as now required.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS.

its organization, 1793, to December 31, 1898.]

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
....	$204,791	$161,572.00	....	....	....	$4,320.80	....
....	72,920	....	$1,473.50	....	$2,213.50	511.50	....
....	7,776	1,959.00	63.00	....	2,526.10	2,226.35	....
....	327,536	....	....	....	2,755.00	....	....
....	423.515	....	....	....	....	....	....
....	220,920	....	....	....	2,176.00	1,200.00	....
....	54,454	15,144.50	....	....	3,464.00	1,695.50	....
....	41,650	14,945.00	....	....	1,097.50	650.50	....
....	66,064	15 857.50	....	....	3,304.00	1,892.50	....
....	19,570	78,259.50	1,684.50	....	826.50	....	....
....	321	105,861.00	30,348.50	....	12,078.00	780.00	....
....	....	419,788 00	51,531.00	....	....	....	....
....	....	525,788.00	55,160.75	....	16,500.00	....	....
....	....	684,300.00	....	....	....	....	....
....	....	702,905.00	....	....	4,471.00	....	....
....	....	638,138.00	....	....	635.50	....	....
....	....	601,822.00	....	....	6,518.00	....	....
....	....	814,029.50	....	....	....	....	....
....	....	620,951.50	....	....	....	....	....
....	....	519,537.50	....	....	42,150.00	....	....
....	....	....	17,308.00	....	....	....	....
....	....	23,575.00	5,000.75	....	....	....	....
....	....	607,783.50	....	....	....	....	....
....	....	980,161.00	90,293.50	....	....	....	....
....	....	1,104,000.00	36,000.00	....	....	....	....
....	....	375,561.00	31,861.00	....	94,258.70	....	....
....	....	652,898.50	54,212.75	....	118,651.20	....	....
....	....	779,786.50	16,020.00	....	10,000.00	....	....
....	....	847,100.00	4,450.00	....	44,000.00	....	....
....	....	1,752,477.00	....	....	....	....	....
....	....	1,471,583.00	42,000.00	....	51,000.00	....	....
....	....	2,002,090.00	....	....	....	....	....
....	....	2,746,700.00	1,000.00	....	121,500.00	....	....
....	....	1,537,600.00	25,500.00	....	12,500.00	....	....
....	....	1,856,078.00	....	....	77,000.00	61,500.00	....
....	....	2,382,400.00	....	....	51,000.00	62,000.00	....
....	....	2,936,830.00	99,500.00	....	77,135.00	62,135.00	....
....	....	2,398,500.00	80,000.00	....	52,250.00	48,250.00	....
....	....	2,603,000.00	39,000.00	....	48,500.00	68,500.00	....
....	....	3,206,002.00	71,500.00	....	63,500.00	74,000.00	....
....	....	2,676,003.00	488,000.00	....	141,000.00	138,000.00	....
....	1,000	3,273,100.00	118,000.00	....	119,000.00	95,000.00	....
....	....	1,814,910.00	63,100.00	....	104,200.00	113,800.00	....
....	....	1,773,000.00	208,000.00	....	199,250.00	112,750.00	....
....	300	1,667,280.00	122,786.50	....	105,311.50	53,457.50	....
....	61,005	717,504.00	47,031.75	....	135,858.00	67,204.25	....
....	173,000	155,000.00	30,000.00	....	162,250.00	57,500.00	....
....	184,618	1,006,382.00	22,000.00	....	188,750.00	40,750.00	....
....	165,100	1,922,000.00	161,400.00	....	137,000.00	58,250.00	....
....	20,000	883,000.00	105,300.00	....	7,250.00	21,500.00	....
....	24,500	294,500.00	230,500.00	....	175,500.00	78,200.00	....
....	110,600	1,105,000.00	127,500.00	....	3,130.00	1,350.00	....
....	140,750	578,000.00	183,500.00	....	24,500.00	63,700.00	....
....	15,000	290,000.00	36,500.00	....	45,150.00	33,400.00	....
....	62,600	626,000.00	85,000.00	....	83,900.00	65,450.00	....
....	7,500	113,500.00	47,700.00	....	193,150.00	47,750.00	....
....	1,300	100,375.00	40,000.00	....	102,650.00	39,050.00	$163,422.00
....	1,100	38,565.00	44,265.00	....	153,550.00	50,025.00	559,905.00
....	46,110	1,766,354.00	3,813,555.00	....	1,217,301.00	667,251.00	342,000.00
....	33,140	1,491,000.00	3,095,000.00	....	447,000.00	287,000.00	20,130.00
....	26,000	379,750.00	714,250.00	....	207,500.00	87,500.00	4,170.00
....	63,500	469,000.00	1,816,000.00	....	578,000.00	244,000.00	43,740.00
....	94,000	994,000.00	2,411,000.00	....	558,000.00	364,000.00	31,260.00
....	....	2,113,000.00	1,842,000.00	....	154,000.00	175,000.00	48,120.00
....	256,500	374,000.00	336,000.00	....	43,000.00	17,000.00	10,950.00
....	218,930	151,850.00	201,350.00	....	60,700.00	39,950.00	8,610.00
....	78,500	1,444,200.00	1,213,650.00	....	192,400.00	164,050.00	14,940.00
....	12,090	126,175.00	233,137.50	....	84,755.00	74,627.50	10,906.50
....	27,660	251,830.00	48,015.00	....	1,446.00	923.00	643.80
....	31,170	189,785.00	23,517.50	....	3,907.00	23.50	14.10
....	47,000	255,950.00	14,825.00	....	1,050.00	675.00	255.00
....	3,342,490	65,225,996.50	18,676,790.50	....	6,552,468.50	3,648,798.90	1,259,066.40

coinage being of coin delivered by coiners of mints within the given year, and these deliveries not

COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
Brought forward	$261, 268, 560	$35, 080, 900	$50, 967, 775	$845, 223	$20, 996, 875. 00	$17, 738, 228
1866	13, 975, 500	37, 800	33, 600	12, 090	7, 775. 00	7, 180
1867	5, 021, 300	31, 400	34, 600	7, 950	8. 125. 00	5, 250
1868	1, 972, 000	106, 550	28, 625	14, 625	9, 062. 50	10, 525
1869	3, 503, 100	18, 550	8, 925	7, 575	10, 862. 50	5, 925
1870	3, 103, 700	25, 350	20, 175	10, 605	11, 387. 50	6, 335
1871	1, 603, 000	17, 800	16, 150	3, 990	13, 375. 00	3, 930
1872	5, 037, 600	16, 500	8, 450	6, 090	7, 575. 00	3, 530
1873	34, 196, 500	8, 250	562, 525	75	445, 062. 50	125, 125
1874	7, 336, 000	531, 600	17, 540	125, 460	9, 850. 00	198, 820
1875	5, 914, 800	1, 200	1, 100	60	1, 050. 00	420
1876	11, 678, 100	7, 320	7, 385	135	10, 552. 50	3, 245
1877	7, 953, 400	8, 170	5, 760	4, 464	4, 130. 00	3, 920
1878	10, 872, 900	738, 000	658, 700	246, 972	715, 650. 00	3, 020
1879	4, 152, 600	3, 847, 700	1, 509, 750	9, 090	222, 475. 00	3, 030
1880	1, 029, 120	16, 448, 760	15, 832, 180	3, 108	7, 490. 00	1, 636
1881	45, 200	38, 772, 600	28, 544, 000	1, 650	1, 700. 00	7, 660
1882	12, 600	23, 244, 800	12. 572, 800	4, 620	10, 100. 00	5, 040
1883	800	2, 087, 400	1, 167, 200	2, 820	4, 900. 00	10, 840
1884	1, 420	769, 050	955, 240	3, 318	4, 982. 50	6, 206
1885	16, 560	2, 535, 270	3, 007, 530	2, 730	2, 217. 50	12, 205
1886	22, 120	2, 361, 600	1, 942, 160	3, 426	10. 220. 00	6, 016
1887	2, 420	536, 800	435	18, 480	15, 705. 00	8, 543
1888	4, 525, 320	1, 329, 960	91, 480	15. 873	40, 245. 00	16. 080
1889	882, 220	44. 850	37, 825	7, 287	44, 120. 00	30, 729
1890	1, 519, 900	580, 430	21, 640	....	22, 032. 50	....
1891	28, 840	918, 680	307, 065	....	27, 600. 00	....
1892	90, 460	7, 975, 520	3, 767, 860	....	6, 362. 50	....
1893	6, 886, 780	18, 408, 950	7, 640, 985	....	75, 265. 00	....
1894	27, 379, 800	24, 707, 780	4, 789, 775	....	10, 305. 00	....
1895	22, 293, 120	5, 678, 260	6, 729, 680	....	15, 297. 50	....
1896	15, 853, 260	763. 480	295, 315	....	48, 005. 00	....
1897	27, 665, 220	10, 001, 590	4, 339, 415	....	74, 760. 00	....
1898	3, 409, 400	8, 121, 970	3. 167, 475	....	60, 412. 50	....
Total	489, 253, 620	205, 764, 840	149, 091, 120	1, 357, 716	22, 955, 527. 50	18, 223, 438

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its organization, 1793, to December 31, 1898.]

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
	$3,342,490	$65,225,996.50	$18,676,790.50		$6,552,468.50	$3,648,798.90	$1,259,066.40
	49,625	372,812.50	4,381.25		872.50	536.25	681.75
	60,325	212,162.50	5,156.25		662.50	431.25	138.75
	182,700	189,100.00	7,500.00		46,625.00	4,295.00	123.00
	424,300	397,950.00	4,150.00		25,660.00	10,430.00	153.00
	433,000	300,450.00	21,850.00		47,150.00	26,830.00	120.00
	1,115,760	582,680.00	42,808.00		75,361.00	74,443.00	127.80
	1,106,450	440,775.00	45,737.50		239,645.00	147,397.50	58.50
$397,500	293,600	1,308,750.00	371,075.00		394,710.00	35,630.00	18.00
987,800		1,180,150.00	117,975.00		294,070.00		
218,900		3,013,750.00	1,073,375.00	$7,940	1,035,070.00		
456,150		4,209,575.00	4,454,287.50	3,180	1,146,115.00		
3,039,710		4,152,255.00	2,727,927.50	102	731,051.00		
900	10,509,550	689,200.00	565,200.00	120	167,880.00		
1,541	14,807,100	2,950.00	3,675.00		1,510.00		
1,987	12,601,355	4,877.50	3,738.75		3,735.50		
960	9,163,975	5,487.50	3,243.75		2,497.50		
1,097	11,101,100	2,750.00	4,075.00		391,110.00		
979	12,291,039	4,519.50	3,859.75		767,571.20		
	14,070,875	2,637.50	2,218.75		336,638.00		
	17,787,767	3,065.00	3,632.50		253,342.70		
	19,963,886	2,943.00	1,471.50		637,757.00		
	20,290,710	2,855.00	2,677.50		1,128,393.90		
	19,183,833	6,416.50	2,708.25		549,648.70		
	21,726,811	6,355.50	3,177.75		738,071.10		
	16,802,590	6,295.00	20,147.50		991,154.10		
	8,694,206	100,300.00	980,150.00		1,531,060.00		
	1,037,245	[a]942,622.50	2,059,311.25		1,212,124.50		
	378,792	[b]2,939,448.50	[c]1,371,203.75		334,079.20		
	110,972	574.486.00	858,243.00		133,097.20		
	12,880	917,609.00	1,110,220.00		69,088.00		
	9,976,762	475,381.00	968,690.50		200,076.20		
	2,822,731	1,240,365.50	2,035,182.75		1,086,926.40		
	5,884,735	1,478,367.50	2,775,183.75		1,632,073.50		
5,107,524	236,227,164	90,995,338.50	40,331,024.50	11,342	22,757,295.20	3,948,791.90	1,260,487.20

[a] Includes Columbian souvenir half dollars, 1892, $475,000.
[b] Includes Columbian souvenir half dollars, 1893, $2,026,052.50.
[c] Includes Columbian souvenir quarter dollars, 1893, $10,005.75.

COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1793–1795			
1796			
1797			
1798			
1799			
1800			
1801			
1802			
1803			
1804			
1805			
1806			
1807			
1808			
1809			
1810			
1811			
1812			
1813			
1814			
1815			
1816			
1817			
1818			
1819			
1820			
1821			
1822			
1823			
1824			
1825			
1826			
1827			
1828			
1829			
1830			
1831			
1832			
1833			
1834			
1835			
1836			
1837			
1838			
1839			
1840			
1841			
1842			
1843			
1844			
1845			
1846			
1847			
1848			
1849			
1850			
1851			
1852			
1853			
1854			
1855			
1856			
1857			
1858			
1859			
1860			
1861			
1862			
1863			
1864			$396,950.00
1865		$341,460.00	272,800.00
1866	$737,125.00	144,030.00	63,540.00
1867	1,545,475.00	117,450.00	58,775.00
1868	1,440,850.00	97,560.00	56,075.00
1869	819,750.00	48,120.00	30,930.00
Carried forward	4,543,200.00	748.620.00	879,070.00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its organization, 1793, to December 31, 1898.]

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
$10,660.33	$712.67	$71,485.00	$370,683.80	$11,373.00	$453,541.80
9,747.00	577.40	77,960.00	77,118.50	10,324.40	165,402.90
8,975.10	535.24	128,190.00	14,550.45	9,510.34	152,250.79
9,797.00	....	205,610.00	330,291.00	9,797.00	545,698.00
9,045.85	60.83	213,285.00	423,515.00	9,106.68	645,906.68
28,221.75	1,057.65	317,760.00	224,296.00	29,279.40	571,335.40
13,628.37	....	422,570.00	74,758.00	13,628.37	510,956.37
34,351.00	71.83	423,310.00	58,343.00	34,422.83	516,075.83
24,713.53	489.50	258,377.50	87,118.00	25,203.03	370,698.53
7,568.38	5,276.56	258,642.50	100,340.50	12,844.94	371,827.94
9,411.16	4,072.32	170,367.50	149,388.50	13,483.48	333,239.48
3,480.00	1,780.00	324,505.00	471,319.00	5,260.00	801,084.00
7,272.21	2,380.00	437,495.00	597,448.75	9,652.21	1,044,595.96
11,090.00	2,000.00	284,665.00	684,300.00	13,090.00	982,055.00
2,228.67	5,772.86	169,375.00	707,376.00	8,001.53	884,752.53
14,585.00	1,075.00	501,435.00	638,773.50	15,660.00	1,155,868.50
2,180.25	315.70	497,905.00	608,340.00	2,495.95	1,108,740.95
10,755.00	....	290,435.00	814,029.50	10,755.00	1,115,219.50
4,180.00	....	477,140.00	620,951.50	4,180.00	1,102,271.50
3,578.30	....	77,270.00	561,687.50	3,578.30	642,535.80
....	....	3,175.00	17,308.00	....	20,483.00
28,209.82	....	....	28,575.75	28,209.82	56,785.57
39,484.00	....	....	607,783.50	39,484.00	647,267.50
31,670.00	....	242,940.00	1,070,454.50	31,670.00	1,345,064.50
26,710.00	....	258,615.00	1,140,000.00	26,710.00	1,425,325.00
44,075.50	....	1,319,030.00	501,680.70	44,075.50	1,864,786.20
3,890.00	....	189,325.00	825,762.45	3,890.00	1,018,977.45
20,723.39	....	88,980.00	805,806.50	20,723.39	915,509.89
....	....	72,425.00	895,550.00	....	967,975.00
12,620.00	....	93,200.00	1,752,477.00	12,620.00	1,858,297.00
14,611.00	315.00	156,385.00	1,564,583.00	14,926.00	1,735,894.00
15,174.25	1,170.00	92,245.00	2,002,090.00	16,344.25	2,110,679.25
23,577.32	....	131,565.00	2,869,200.00	23,577.32	3,024,342.32
22,606.24	3,030.00	140,145.00	1,575,600.00	25,636.24	1,741,381.24
14,145.00	2,435.00	295,717.50	1,994,578.00	16,580.00	2,306,875.50
17,115.00	....	643,105.00	2,495,400.00	17,115.00	3,155,620.00
33.592.60	11.00	714,270.00	3,175,600.00	33,603.60	3,923,473.60
23,620.00	....	798,435.00	2,579,000.00	23,620.00	3,401,055.00
27,390.00	770.00	978,550.00	2,759,000.00	28,160.00	3,765,710.00
18,551.00	600.00	3,954,270.00	3,415,002.00	19,151.00	7,388,423.00
38,784.00	705.00	2,186,175.00	3,443,003.00	39,489.00	5,668,667.00
21,110.00	1,990.00	4,135,700.00	3,606,100.00	23,100.00	7,764,900.00
55,583.00	....	1,148,305.00	2,096,010.00	55,583.00	3,299,898.00
63,702.00	....	1,622,515.00	2,293,000.00	63,702.00	3,979,217.00
31,286.61	....	1,040,747.50	1,949,135.50	31,286.61	3,021,169.61
24,627.00	....	1,207,437.50	1,028,603.00	24,627.00	2,260,667.50
15,973.67	....	710,475.00	577,750.00	15,973.67	1,304,198.67
23,833.90	....	960,017.50	1,442,500.00	23,833.90	2,426,351.40
24,283.20	....	4,062,010.00	2,443,750.00	24,283.20	6,530,043.20
23,987.52	....	1,782,220.00	1,037,050.00	23,987.52	2,843,257.52
38,948.04	....	2,574,652.50	803,200.00	38,948.04	3,416,800.54
41,208.00	....	2,234,655.00	1,347,580.00	41,208.00	3,623,443.00
61,836 69	....	13,277,020.00	990,450.00	61,836.69	14,329,306.69
64,157.99	....	2,780,930.00	420,050.00	64,157.99	3,265,137.99
41,785 00	199.32	7.948,332.00	922,950.00	41,984.32	8,913,266.32
44,268 44	199.06	27,756,445.50	409,600.00	44,467.50	28,210,513.00
98,897.07	738.36	52,143,446.00	446,797.00	99,635.43	52,689,878.43
50,630 94	....	51,505,638.50	847,410.00	50,630.94	52.403,679.44
66,411 31	648.47	36,355,621.00	7,852,571.00	67,059.78	44,275,251.78
42,361.56	276.79	20,049,799.00	5,373,270.00	42,638.35	25,465,707.35
15,748 29	282.50	10,594,454.00	1,419,170.00	16,030.79	12,029,654.79
26,904.63	202.15	10,993,976.00	3,214,240.00	27,106.78	14,235,322.78
177,834.56	175.90	10,817,287.00	4,452,260.00	178,010.46	15,447,557.46
246,000.00	....	4,578,006.50	4,332,120.00	246,000.00	9,156,126.50
364,000.00	....	1,430,708.00	1,037,450.00	364,000.00	2,832,158.00
205,660,00	....	11,885,175.50	681,390.00	205,660.00	12,772,225.50
101,000.00	....	67,588,150.00	3,107,740.00	101,000.00	70,796,890.00
280,750.00	....	3,600,037.50	541,691.50	280,750.00	4,422,479.00
498,400.00	....	2,902,082.00	330,517.80	498,400.00	3,730,999.80
529,737.14	....	4,163,775.00	248,417.10	926,687.14	5,338,879.24
354,292.86	....	7,081,607.50	319,755.00	968,552.86	8,369,915.36
98,265.00	....	14,073,945.00	428,909.25	1,042,960.00	15,545,814.25
98,210.00	....	5,108,625.00	278,876.25	1,819,910.00	7,207,411.25
102,665.00	....	2,141,387.50	430,343.00	1,697,150.00	4,268,880.50
64,200.00	....	3,554,937.50	862,643.00	963,000.00	5,380,580.50
4,680,577.44	39,926.11	411,776,456.00	100,706,382.30	10,891,393.55	523,374,231.85

COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
Brought forward	$4, 543, 200. 00	$748, 620. 00	$879, 070. 00
1870	240, 300. 00	40, 050. 00	17, 225. 00
1871	28, 050. 00	18, 120. 00	14, 425. 00
1872	301, 800. 00	25, 860. 00	1, 300. 00
1873	227, 500. 00	35, 190. 00	
1874	176, 900. 00	23, 700. 00	
1875	104, 850. 00	6, 840. 00	
1876	126, 500. 00	4, 860. 00	
1877			
1878	117. 50	70. 50	
1879	1, 455. 00	1, 236. 00	
1880	997. 75	748. 65	
1881	3, 618. 75	32, 417. 25	
1882	573, 830. 00	759. 00	
1883	1, 148, 471. 05	318. 27	
1884	563, 697. 10	169. 26	
1885	73, 824. 50	143. 70	
1886	166, 514. 50	128. 70	
1887	763, 182. 60	238. 83	
1888	536, 024. 15	1, 232. 49	
1889	794, 068. 05	646. 83	
1890	812, 963. 60		
1891	841, 717. 50		
1892	584, 982. 10		
1893	668, 509. 75		
1894	270, 656. 60		
1895	498, 994. 20		
1896	442, 146. 00		
1897	1, 021, 436. 75		
1898	626, 604. 35		
Total	16, 142, 911. 80	941, 349. 48	912, 020. 00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its organization, 1793, to December 31, 1898.

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
$4,680,577.44	$39,926.11	$411,776,456.00	$100,706,382.30	$10,891,393.55	$523,374,231.85
52,750.00	....	3,177,552.50	829,400.00	350,325.00	4,357,277.50
39,295.00	....	1,658,245.00	1,891,179.80	99,890.00	3,649,314.80
40,420.00	....	5,079,745.00	1,980,063.50	369,380.00	7,429,188.50
116,765.00	....	35,337,537.50	2,801,283.00	379,455.00	38,518,275.50
141,875.00	....	8,219,270.00	2,579,995.00	342,475.00	11,141,740.00
135,280.00	....	5,918,630.00	5.349,035.00	246,970.00	11,514,635.00
79,440.00	....	11,706,737.50	10,269,307.50	210,800.00	22,186,845.00
8,525.00	....	7,979,844.00	10,651,045.50	8,525.00	18,639,414.50
57,998.50	....	13,235,242.00	11,932,850.00	58,186.50	25,226,278.50
162,312.00	....	9,744,645.00	14,816.776.00	165,003.00	24,726,424.00
389,649.55	....	33,322,294.00	12,615,693.75	391,395.95	46,329,383.70
392,115.75	....	67,372,810.00	9,176,163.75	428,151.75	76,977,125.50
385,811.00	....	35,849,960.00	11,500,132.00	960,400.00	48,310,492.00
455,981.09	....	3,273,960.00	13,067.968.45	1,604,770.41	17,946,698.86
232,617.42	....	1,740,216.50	14,412,369.25	796,483.78	16,949,069.53
117,653.84	....	5,576,512.50	18,047,807.20	191,622.04	23,815,941.74
176,542.90	....	4,345,542.00	20,606,057.50	343,186.10	25,294,785.60
452,264.83	....	582,383.00	21,424,636.40	1,215,686.26	23,222,705.66
374,944.14	....	6,018,958.00	19,742,606.45	912,200.78	26,673,765.23
488,693.61	....	1,047,031.00	22,474,415.35	1,283,408.49	24,804,854.84
571,828.54	....	2,144,002.50	17,820,186.60	1,384,792.14	21,348,981.24
470,723.50	....	1,282,185.00	11,305,716.00	1,312,441.00	13,900,342.00
376,498.32	....	11,840,202.50	5,251,303.25	961,480.42	18,052,986.17
466,421.95	....	33,011,980.00	5,023,523.45	1,134,931.70	39,170,435.15
167,521.32	....	56,887,660.00	1,676,798.20	438,177.92	59,002,636.12
383,436.36	....	34,716,357.50	2,109,797.00	882,430.56	37,708,585.06
390,572.93	....	16,960,060.00	11,620,909.70	832,718.93	29,413,688.63
504,663.30	....	42,080,985.00	7,185,205.65	1,526,100.05	50,792,290.70
498,230.79	....	14,759,257.50	11,770,359.75	1,124,835.14	27,654,452.39
12,811,409.08	39,926.11	886,646,261.50	400,638,967.30	30,847,616.47	1,318,132,845.27

Coinage of the Mints of the United States

[Coinage of the mint at New Orleans from its organization, 1838, to

Calendar years.	GOLD.						SILVER.
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	Dollars.
1838							
1839					$44, 452. 50		
1840			$152, 000		65, 500. 00		
1841		$25, 000	41, 750		18, 450. 00		
1842		274, 000	82, 000		49, 500. 00		
1843		1, 751, 620	505, 375		920, 005. 00		
1844		1, 187, 000	1, 823, 000				
1845		475 000	205, 000				
1846		817, 800	290, 000		165, 000. 00		$59, 000
1847		5, 715, 000	60, 000		310, 000. 00		
1848		358, 500					
1849		239, 000				$215, 000	
1850	$2, 820, 000	575, 000			210, 000. 00	14, 000	40, 000
1851	6, 300, 000	2, 630, 000	205, 000		370, 000. 00	290, 000	
1852	3, 800, 000	180, 000			350, 000. 00	140, 000	
1853	1, 420, 000	510, 000				290, 000	
1854	65, 000	525, 000	230, 000	$72, 000	382, 500. 00		
1855	160, 000	180, 000	55, 500			55, 000	
1856	45, 000	145, 000	50, 000		52, 750. 00		
1857	600, 000	55, 000	65, 000		85, 000. 00		
1858	705, 000	200, 000					
1859	182, 000	23, 000					360, 000
1860	132, 000	111, 000					515, 000
1861 [a]	100, 000						
1879	46, 500	15, 000					2, 887, 000
1880		92, 000					5, 305, 000
1881		83, 500					5, 708, 900
1882		108, 200					6, 090, 000
1883		8, 000					8, 725, 000
1884							9, 730, 000
1885							9, 185, 000
1886							10, 710, 000
1887							11, 550, 000
1888		213, 350					12, 150, 000
1889							11, 875, 000
1890							10, 701, 000
1891							7, 954, 529
1892		286, 880	50, 000				2, 744, 000
1893		170, 000	550, 000				300, 000
1894		1, 075, 000	83, 000				1, 723, 000
1895		980, 000					450, 000
1896							4, 900, 000
1897		425, 000					4, 004, 000
1898							4, 440, 000
Total	16, 375, 500	19, 433, 850	4, 447, 625	72, 000	3, 023, 157. 50	1, 004, 000	132, 105, 529

[a] No coinage from 1862 to 1878, inclusive.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its suspension, 1861, and from its reopening, 1879, to December 31, 1898.]

SILVER.					TOTAL COINAGE.		TOTAL VALUE.
Half dollars.	Quarter dollars.	Dimes.	Half dimes.	Three cents.	Gold.	Silver.	
....	....	$40, 243. 40	....	....	....	$40, 243. 40	$40, 243. 40
$81, 488	....	124, 327. 20	$54, 827. 50	....	$44, 452. 50	260, 642. 70	305, 095. 20
427, 550	$106, 300	117, 500. 00	46, 750. 00	....	217, 500. 00	698, 100. 00	915, 600. 00
200, 500	113, 000	200, 750. 00	40, 750. 00	....	85, 200. 00	555, 000. 00	640, 200. 00
478, 500	192, 250	202, 000. 00	17, 500. 00	....	405, 500. 00	890, 250. 00	1, 295, 750. 00
1, 134, 000	242, 000	15, 000. 00	....	....	3, 177, 000 00	1, 391, 000. 00	4, 568, 000. 00
1, 002, 500	185, 000	....	11, 000. 00	....	3, 010, 000. 00	1, 198, 500. 00	4, 208, 500. 00
1, 047, 000	....	23, 000. 00	....	....	680, 000. 00	1, 070, 000. 00	1, 750, 000. 00
1, 152, 000	....	....	....	....	1, 272, 800. 00	1. 211, 000. 00	2, 483, 800. 00
1, 292, 000	92, 000	....	....	....	6, 085, 000. 00	1, 384, 000. 00	7, 469 000. 00
1, 590, 000	....	....	30, 000. 00	....	358, 500. 00	1, 620, 000. 00	1, 978, 500. 00
1, 155, 000	....	30, 000. 00	7, 000. 00	....	454, 000. 00	1, 192, 000. 00	1, 646, 000. 00
1, 228, 000	103, 000	51, 000. 00	34, 500. 00	....	3, 619, 000. 00	1, 456, 500. 00	5, 075, 500. 00
201, 000	22, 000	40, 000. 00	43, 000. 00	$21, 600	9, 795, 000. 00	327, 600. 00	10, 122, 600 00
72, 000	24, 000	43, 000. 00	13, 000. 00	....	4, 470, 000. 00	152, 000. 00	4, 622, 000. 00
664, 000	333, 000	110, 000. 00	118, 000. 00	....	2, 220, 000. 00	1, 225, 000. 00	3, 445. 000. 00
2, 620, 000	371, 000	177, 000. 00	78, 000. 00	....	1, 274, 500. 00	3, 246, 000. 00	4, 520, 500. 00
1, 844. 000	44, 000	....	30, 000. 00	....	450, 500. 00	1, 918, 000. 00	2, 368, 500. 00
1, 329, 000	242, 000	118, 000. 00	55, 000. 00	....	292, 750. 00	1, 744, 000. 00	2, 036, 750. 00
409. 000	295, 000	154, 000. 00	69, 000. 00	....	805, 000. 00	927, 000. 00	1, 732, 000. 00
3, 647, 000	130, 000	29, 000. 00	83, 000. 00	....	905, 000. 00	3, 889, 000. 00	4, 794, 000. 00
1, 417, 000	65, 000	48, 000. 00	28, 000. 00	....	205, 000. 00	1, 918, 000. 00	2, 123, 000. 00
645, 000	97, 000	4, 000. 00	53, 000. 00	....	243, 000. 00	1, 314, 000. 00	1, 557, 000. 00
165, 000	....	....	....	....	100, 000. 00	165, 000. 00	265, 000. 00
....	....	....	....	....	61, 500. 00	2. 887, 000. 00	2, 948, 500. 00
....	....	....	....	....	92, 000. 00	5, 305. 000. 00	5, 397, 000. 00
....	....	....	....	....	83, 500. 00	5, 708, 000. 00	5, 791, 500. 00
....	....	....	....	....	108, 200. 00	6, 090, 000. 00	6, 198, 200. 00
....	....	....	....	....	8, 000. 00	8, 725, 000. 00	8, 733, 000. 00
....	....	....	....	....	....	9, 730, 000. 00	9, 730, 000. 00
....	....	....	....	....	....	9, 185, 000. 00	9, 185, 000. 00
....	....	....	....	....	....	10, 710. 000. 00	10, 710, 000. 00
....	....	....	....	....	....	11, 550, 000. 00	11, 550, 000. 00
....	....	....	....	....	213, 350. 00	12, 150, 000. 00	12, 363, 350. 00
....	....	....	....	....	....	11, 875, 000. 00	11, 875, 000. 00
....	....	....	....	....	....	10, 701, 000. 00	10, 701, 000. 00
....	17, 000	454, 000. 00	....	....	....	8, 425, 529. 00	8, 425, 529. 00
195, 000	660, 000	384, 170. 00	....	....	336, 880. 00	3, 983, 170. 00	4, 320, 050. 00
694, 500	849, 000	176, 000. 00	....	....	720, 000. 00	2, 019, 500. 00	2, 739, 500 00
1, 069, 000	713, 000	72, 000. 00	....	....	1, 158, 000. 00	3, 577, 000. 00	4, 735, 000. 00
883, 000	704, 000	44, 000. 00	....	....	980, 000. 00	2, 081, 000. 00	3, 061, 000. 00
462, 000	371, 000	61, 000. 00	....	....	....	5, 794, 000. 00	5, 794, 000. 00
316, 000	353, 700	66, 600. 00	....	....	425, 000. 00	4, 740, 300. 00	5, 165, 300. 00
437, 000	467, 000	213, 000. 00	....	....	....	5, 557, 000. 00	5, 557, 000. 00
27, 858, 038	6, 791, 250	2, 997, 590. 60	812, 327. 50	21, 600	44, 356, 132. 50	170,586,335.10	214, 942, 467. 60

COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

[Coinage of the mint at Charlotte, N. C., from its organization, 1838, to its suspension, 1861.]

Calendar years.	GOLD.			TOTAL VALUE.
	Half eagles.	Quarter eagles.	Dollars.	
1838	$64, 565	$19, 770. 00		$84, 335. 00
1839	117, 335	45, 432. 50		162, 767. 50
1840	95, 140	32, 095. 00		127, 235. 00
1841	107, 555	25, 742. 50		133, 297. 50
1842	137, 400	16, 842. 50		154, 242. 50
1843	221, 765	65, 240. 00		287, 005. 00
1844 *a*	118, 155	29, 055. 00		147, 210. 00
1845 *b*				
1846	64, 975	12, 020. 00		76, 995. 00
1847	420, 755	58, 065. 00		478, 820. 00
1848	322, 360	41, 970. 00		364, 330. 00
1849	324, 115	25, 550. 00	$11, 634	361, 299. 00
1850	317, 955	22, 870. 00	6, 966	347, 791. 00
1851	245, 880	37, 307. 50	41, 267	324, 454. 50
1852	362, 870	24, 430. 00	9, 434	396, 734. 00
1853	327, 855		11, 515	339, 370. 00
1854	196, 455	18, 237. 50	4	214, 696. 50
1855	198, 940	9, 192. 50	9, 803	217, 935. 50
1856	142, 285	19, 782. 50		162, 067. 50
1857	156, 800		13, 280	170, 080. 00
1858	194, 280	22, 640. 00		216, 920. 00
1859	159, 235		5, 235	164, 470. 00
1860	74, 065	18, 672. 50		92, 737. 50
1861	34, 395			34, 395. 00
Total	4, 405, 135	544, 915. 00	109, 138	5, 059, 188. 00

a Mint burned July 27, 1844. *b* No coinage.

COINAGE OF THE MINTS OF THE UNITED STATES FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

[Coinage of the mint at Dahlonega, Ga., from its organization, 1838, to its suspension, 1861.]

Calendar years.	GOLD.				TOTAL VALUE.
	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	
1838	$102, 915				$102, 915. 00
1839	94, 695		$34, 185. 00		128, 880. 00
1840	114, 480		8, 830. 00		123, 310. 00
1841	152, 475		10, 410. 00		162, 885. 00
1842	298, 040		11, 607. 50		309, 647. 50
1843	492, 260		90, 522. 50		582, 782. 50
1844	444, 910		43, 330. 00		488, 240. 00
1845	453, 145		48, 650. 00		501, 795. 00
1846	401, 470		48, 257. 50		449, 727. 50
1847	322, 025		39, 460. 00		361, 485. 00
1848	237, 325		34, 427. 50		271, 752. 50
1849	195, 180		27, 362. 50	$21, 588	244, 130. 50
1850	219, 750		30, 370. 00	8, 382	258, 502. 00
1851	313, 550		28, 160. 00	9, 882	351, 592. 00
1852	457, 260		10, 195. 00	6, 360	473, 815. 00
1853	448, 390		7, 945. 00	6, 583	462, 918. 00
1854	282, 065	$3, 360	4, 400. 00	2, 935	292, 760. 00
1855	112, 160		2, 807. 50	1, 811	116, 778. 50
1856	98, 930		2, 185. 00	1, 460	102, 575. 00
1857	85, 230		5, 910. 00	3, 533	94, 673. 00
1858	76, 810			3, 477	80, 287. 00
1859	51, 830		5, 610. 00	4, 952	62, 392. 00
1860	73, 175			1, 566	74, 741. 00
1861	7, 985				7, 985. 00
Total	5, 536, 055	3, 360	494, 625. 00	72, 529	6, 106, 569. 00

Coinage of the Mints of the United States

[Coinage of the mint at San Francisco

Calendar years.	GOLD.						SILVER.	
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	Dollars.	Trade dollars.
1854	$2,829,360	$1,238,260	$1,340	....	$615	$14,632	....	....
1855	17,593,500	90,000	305,000	$19,800	....	....	....	....
1856	23,795,000	680,000	525,500	103,500	177,800	24,600	....	....
1857	19,410,000	260,000	435,000	42,000	170,000	10,000	....	....
1858	16,934,200	118,000	93,000	....	3,000	10,000	....	....
1859	12,728,900	70,000	66,100	....	38,000	15,000	$20,000	....
1860	10,899,000	50,000	106,000	21,000	89,000	13,000	....	....
1861	15,360,000	155,000	90,000	....	60,000	....	....	....
1862	17,083,460	125,000	47,500	....	20,000	....	....	....
1863	19,331,400	100,000	85,000	....	27,000	....	....	....
1864	15,873,200	25,000	19,440	....	....	....	....	....
1865	20,850,000	167,000	138,060	....	58,440	....	....	....
1866	16,845,000	200,000	219,600	....	97,400	....	....	....
1867	18,415,000	90,000	145,000	....	70,000	....	....	....
1868	16,750,000	135,000	260,000	....	85,000	....	....	....
1869	13,735,000	64,300	155.000	....	73,750	....	....	....
1870	19,640,000	80,000	85,000	....	40,000	3,000	....	....
1871	18,560,000	165,000	125,000	....	55,000	....	....	....
1872	15,600,000	173,000	182,000	....	45,000	....	9,000	....
1873	20,812,000	120,000	155,000	....	67,500	....	700	$703,000
1874	24,280,000	100,000	80,000	....	....	....	....	2,549,000
1875	24,600,000	....	45,000	....	29,000	....	....	4,487,000
1876	31,940,000	50,000	20,000	....	12,500	....	....	5,227,000
1877	34,700,000	170,000	133,500	....	88,500	....	....	9,519,000
1878	34,780,000	261,000	723,500	....	445,000	....	9,774,000	4,162,000
1879	24,476,000	2,240,000	2,131,000	....	108,750	....	9,110,000	....
1880	16,720,000	5,062,500	6,744,500	....	....	....	8,900,000	....
1881	14,540,000	9,700,000	4,845,000	....	....	....	12,760,000	....
1882	22,500,000	1,320,000	4,845,000	....	....	....	9,250,000	....
1883	23,780,000	380,000	416,000	....	....	....	6,250,000	....
1884	18,320.000	1,242,500	885,000	....	....	....	3,200,000	....
1885	13,670,000	2,280,000	6,057,500	....	....	....	1,497,000	....
1886	....	8,260,000	16,340,000	....	....	....	750,000	....
1887	5,660,000	8,170,000	9,560,000	....	....	....	1,771,000	....
1888	17,192,000	6,487,000	1,469,500	....	....	....	657,000	....
1889	15,494,000	4,254,000	....	....	....	....	700,000	....
1890	16,055,000	....	....	....	....	....	8,230,373	....
1891	25,762,500	....	....	....	....	....	5,296,000	....
1892	18,603,000	1,155,000	1,492,000	....	....	....	1,200,000	....
1893	19,923,500	1,413,500	1,120,000	....	....	....	100,000	....
1894	20,971,000	250,000	279,500	....	....	....	1,260,000	....
1895	22,870,000	490,000	560,000	....	....	....	400,000	....
1896	28,078,500	1,237,500	777,000	....	....	....	5,000,000	....
1897	29,405,000	2,347,500	1,770,000	....	....	....	5,825,000	....
1898	51,503,500	4,736,000	6,987,000	....	....	....	4,102,000	....
Total	888,869,020	65,712,060	70,519,540	186,300	1,861,255	90,232	96,062,073	26,647,000

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

from its organization, 1854, to December 31, 1898.]

SILVER.					TOTAL COINAGE.		TOTAL VALUE.
Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Gold.	Silver.	
					$4,084,207		$4,084,207.00
$64,975.00	$99,100.00				18,008,300	$164,075.00	18,172,375.00
105,500.00	71,500.00		$7,000.00		25,306,400	184,000.00	25,490,400.00
79,000.00	20,500.00				20,327,000	99,500.00	20,426,500.00
238,000.00	30,250.00		6,000.00		17.158,200	274,250.00	17,432,450.00
283,000.00	20,000.00		6,000.00		12,918,000	329,000.00	13,247,000.00
236,000.00	14,000.00		14,000.00		11,178,000	264,000.00	11,442,000.00
469.750.00	24,000.00		17,250.00		15,665,000	511,000.00	16,176,000.00
676,000.00	16,750.00		18.075.00		17,275,960	710,825.00	17.986,785.00
458.000.00			15,750.00	$5,000	19,543,400	478,750.00	20,022,150.00
329,000.00	5,000.00		23,000.00	4,500	15,917,640	361,500.00	16,279,140.00
337,500.00	10,250.00		17,500.00	6,000	21,213,500	371,250.00	21,584,750.00
527,000.00	7,000.00		13,500.00	6,000	17,362,000	553,500.00	17,915,500.00
598,000.00	12,000.00		14,000.00	6,000	18,720,000	630,000.00	19,350,000.00
580,000.00	24,000.00		26,000.00	14,000	17,230,000	644,000.00	17,874,000.00
328,000.00	19,000.00		45,000.00	11,500	14,028,050	403,500.00	14.431,550.00
502,000.00			5,000.00		19,848,000	507,000.00	20,355,000.00
1,089,000.00	7,725.00		32,000.00	8,050	18,905,000	1,136,775.00	20,041,775.00
290,000.00	20,750.00		19,000.00	41,850	16,000,000	380,600.00	16,380,600.00
116,500.00	39,000.00		45,500.00	16,200	21,154,500	920,900.00	22,075,400.00
197,000.00	98,000.00		24,000.00		24,460,000	2,868,000.00	27,328,000.00
1,600,900.00	170,000.00	$231,000	907,000.00		24,674,000	7,395,000.00	32,069,000.00
2.264,000.00	2,149,000.00		1,042,000.00		32,022,500	10,682,000.00	42,704,500.00
2.678,000.00	2,249,000.00		234,000.00		35,092,000	14,680,000.00	49,772,000.00
6,000.00	35,000.00				36,209,500	13,977,000.00	50,186,500.00
					28,955,750	9,110,000.00	38,065,750.00
					28,527,000	8,900,000.00	37,427,000.00
					29,085,000	12,760,000.00	41,845,000.00
					28,665,000	9,250,000.00	37,915,000.00
					24,576,000	6,250,000.00	30,826,000.00
			56,496.90		20,447,500	3,256,496.90	23,703,996.90
			4,369.00		22,007,500	1,501,369.00	23,508,869.00
			20.652.40		24,600,000	770,652.40	25,370,652.40
			445,445.00		23,390,000	2,216,445.00	25,606,445.00
	304,000.00		172,000.00		25,148,500	1,133,000.00	26,281,500.00
			97,267.80		19,748,000	797,267.80	20,545,267.80
			142,307.60		16,055,000	8,372,680.60	24,427,680.60
	554,000.00		319,611.60		25,762,500	6,169,611.60	31,932,111.60
514,514.00	241,019.75		99,071.00		21,250,000	2,054,604.75	23,304,604.75
370,000.00	363,633.75		249,140.10		22,457,000	1,082,773.85	23,539,773.85
2,024,345.00	662,205.25		2.40		21,500,500	3,946,552.65	25,447,052.65
554,043.00	441,170.25		112,000.00		23.920,000	1,507,213.25	25,427,213.25
570,474.00	47,009.75		57,505.60		30,093,000	5,674,989.35	35,767,989.35
466,950.00	135,557.25		134,284.40		33,522,500	6,561,791.65	40,084,291.65
1,179,275.00	255,148.00		170,250.70		63,226,500	5,706,673.70	68,933,173.70
19,731,826.00	8,145,569.00	231,000	4,611,979.50	119,100	1,027,238,407	155,548,547.50	1,182,786,954.50

COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Carson City

Calendar years.	GOLD.			SILVER.	
	Double eagles.	Eagles.	Half eagles.	Dollars.	Trade dollars.
1870	$75, 780	$59, 080	$38, 375	$12, 462	
1871	293, 740	71, 850	103, 850	1, 376	
1872	593, 000	55, 000	84, 900	3, 150	
1873	448, 200	45, 430	37, 080	2, 300	$124, 500
1874	2, 301, 700	167, 670	105, 990		1, 373, 200
1875	2, 223, 020	77, 150	59, 140		1, 573, 700
1876	2, 768, 820	46, 960	34, 435		509, 000
1877	851, 300	33, 320	43, 400		534, 000
1878	263, 600	32, 440	45, 270	2, 212, 000	97, 000
1879	214, 160	17, 620	86, 405	756, 000	
1880		111, 900	255, 085	591, 000	
1881		240, 150	69, 430	296, 000	
1882	782, 800	67. 640	414, 085	1, 133, 000	
1883	1, 199, 240	120. 000	64, 790	1, 204, 000	
1884	1, 622, 780	99, 250	82, 010	1, 136, 000	
1885	189, 000			228, 000	
1886 *a*					
1887 *a*					
1888 *a*					
1889 *b*	618, 900			350, 000	
1890	1, 824, 180	175, 000	269, 000	2, 309, 041	
1891	100, 000	1, 037, 320	1, 040, 000	1, 618, 000	
1892	545, 300	400, 000	414, 840	1, 352, 000	
1893 *c*	368, 040	140, 000	300, 000	677, 000	
Total	17, 283, 560	2, 997, 780	3, 548, 085	13, 881, 329	4, 211, 400

a Coinage suspended.

b Operations resumed October 1, 1889.

RECAPITULATION.

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1793–1795		$27, 950	$43, 535			
1796		60, 800	16, 995		$165. 00	
1797		91, 770	32, 030		4, 390. 00	
1798		79, 740	124, 335		1, 535. 00	
1799		174, 830	37, 255		1, 200. 00	
1800		259, 650	58, 110			
1801		292, 540	130, 030			
1802		150, 900	265, 880		6, 530. 00	
1803		89, 790	167, 530		1, 057. 50	
1804		97, 950	152, 375		8, 317. 50	
1805			165, 915		4, 452. 50	
1806			320, 465		4, 040. 00	
1807			420, 465		17, 030. 00	
1808			277, 890		6, 775. 00	
1809			169, 375			
1810			501, 435			
1811			497, 905			
1812			290, 435			
1813			477, 140			
1814			77, 270			
1815			3, 175			
1816						
1817						
1818			242. 940			
1819			258. 615			
1820			1, 319, 030			
1821			173, 205		16, 120. 00	
1822			88, 980			
1823			72, 425			
1824			86. 700		6. 500. 00	
1825			145, 300		11, 085. 00	
1826			90, 345		1, 900. 00	
1827			124. 565		7, 000. 00	
1828			140, 145			
1829			287, 210		8, 507. 50	
Carried forward		1, 325, 920	7, 259, 005		106, 605. 00	

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

from its organization, 1870, to June 30, 1893.]

SILVER.				TOTAL COINAGE.		TOTAL VALUE.
Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Gold.	Silver.	
$27,308.50	$2,085.00			$173,235	$41,855.50	$215,090.50
69,975.00	2,722.50		$2,010.00	469,440	76,083.50	545,523.50
136,000.00	2,275.00		2,400.00	732,900	143,825.00	876,725.00
168,530.00	4,115.50		3,119.10	530,710	302,564.60	833,274.60
29,500.00			1,081.70	2,575,360	1,403,781.70	3,979,141.70
504,000.00	35,000.00	$26,658	464,500.00	2,359,310	2,603,858.00	4,963,168.00
978,000.00	1,236,000.00	2,000	827,000.00	2,850,215	3,552,000.00	6,402,215.00
710,000.00	1,048,000.00		770,000.00	928,020	3,062,000.00	3,990,020.00
31,000.00	249,000.00		20,000.00	341,310	2,609,000.00	2,950,310.00
				318,185	756,000.00	1,074,185.00
				366,985	591,000.00	957,985.00
				309,580	296,000.00	605,580.00
				1,264,525	1,133,000.00	2,397,525.00
				1,384,030	1,204,000.00	2,588,030.00
				1,804,040	1,136,000.00	2,940,040.00
				189,000	228,000.00	417,000.00
				618,900	350,000.00	968,900.00
				2,268,180	2,309,041.00	4,577,221.00
				2,177,320	1,618,000.00	3,795,320.00
				1,360,140	1,352,000.00	2,712,140.00
				808,040	677,000.00	1,485,040.00
2,654,313.50	2,579,198.00	28,658	2,090,110.80	23,829,425	25,445,009.30	49,274,434.30

c Coinage suspended from May 23, 1893.

RECAPITULATION.

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
	$204,791	$161,572.00				$4,320.80	
	72,920		$1,473.50		$2,213.50	511.50	
	7,776	1,959.00	63.00		2,526.10	2,226.35	
	327,536				2,755.00		
	423,515						
	220,920				2,176.00	1,200.00	
	54,454	15,144.50			3,464.00	1,695.50	
	41,650	14,945.00			1,097.50	650.50	
	66,064	15,857.50			3,304.00	1,892.50	
	19,570	78,259.50	1,684.50		826.50		
	321	105,861.00	30,348.50		12,078.00	780.00	
		419,788.00	51,531.00				
		525,788.00	55,160.75		16,500.00		
		684,300.00					
		702,905.00			4,471.00		
		638,138.00			635.50		
		601,822.00			6,518.00		
		814,029.50					
		620,951.50					
		519,537.50			42,150.00		
			17,308.00				
		23,575.00	5.000.75				
		607,783.50					
		980,161.60	90.293.50				
		1,104,000.00	36 000.00				
		375,561.00	31,861.00		94,258.70		
		652,898.50	54,212.75		118,651.20		
		779,786.50	16,020.00		10,000.00		
		847,100.00	4,450.00		44,000.00		
		1,752,477.00					
		1,471,583.00	42,000.00		51,000.00		
		2,002,090.00					
		2.746,700.00	1,000.00		121,500.00		
		1,537,600.00	25,500.00		12,500.00		
		1,856,078.00			77,000.00	61,500.00	
	1,439,517	22,658,251.50	463.907.25		629,625.00	74,777.15	

COINAGE OF THE MINTS OF THE UNITED STATES

RECAPITULATION—Continued.

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
Brought forward		$1,325,920	$7,259,005		$106,605.00	
1830			631,755		11,350.00	
1831			702,970		11,300.00	
1832			787,435		11,000.00	
1833			968,150		10,400.00	
1834			3,660,845		293,425.00	
1835			1,857,670		328,505.00	
1836			2,765,735		1,369,965.00	
1837			1,035,605		112,700.00	
1838		72,000	1,600,420		137,345.00	
1839		382,480	802,745		191,622.50	
1840		473,380	1,048,530		153,572.50	
1841		656,310	380,945		54,602.50	
1842		1,089,070	655,330		85,007.50	
1843		2,506,240	4,275,425		1,327,132.50	
1844		1,250,610	4,087,715		89,345.00	
1845		736,530	2,743,640		276,277.50	
1846		1,018,750	2,736,155		279,272.50	
1847		14,337,580	5,382,685		482,060.00	
1848		1,813,340	1,863,560		98,612.50	
1849		6,775,180	1,184,645		111,147.50	$936,789
1850	$26,225,220	3,489,510	860,160		895,547.50	511,301
1851	48,043,100	4,393,280	2,651,955		3,867,337.50	3,658,820
1852	44,860,520	2,811,060	3,689,635		3,283,827.50	2,201,145
1853	26,646,520	2,522,530	2,305,095		3,519,615.00	4,384,149
1854	18,052,340	2,305,760	1,513,235	$491,214	1,896,397.50	1,657,016
1855	25,046,820	1,487,010	1,257,090	171,465	600,700.00	824,883
1856	30,437,560	1,429,900	1,806,665	181,530	1,213,117.50	1,788,996
1857	28,797,500	481,060	1,232,970	104,673	796,235.00	801,602
1858	21,873,480	343,210	439,770	6,399	144,082.50	131,472
1859	13,782,840	253,930	361,235	46,914	142,220.00	193,431
1860	22,584,400	278,830	352,365	42,465	164,360.00	51,234
1861	74,989,060	1,287,330	3,332,130	18,216	3,241,295.00	527,499
1862	18,926,120	234,950	69,825	17,355	300,882.50	1,326,865
1863	22,187,200	112,480	97,360	15,117	27,075.00	6,250
1864	19,958,900	60,800	40,540	8,040	7,185.00	5,950
1865	27,874,000	207,050	144,535	3,495	62,302.50	3,725
1866	30,820,500	237,800	253,200	12,090	105,175.00	7,180
1867	23,436,300	121,400	179,600	7,950	78,125.00	5,250
1868	18,722,000	241,550	288,625	14,625	94,062.50	10,525
1869	17,238,100	82,850	163,925	7,575	84,612.50	5,925
1870	22,819,480	164,430	143,550	10,605	51,387.50	9,335
1871	20,456,740	254,650	245,000	3,990	68,375.00	3,930
1872	21,230,600	244,500	275,350	6,090	52,575.00	3,530
1873	55,456,700	173,680	754,605	75	512,562.50	125,125
1874	33,917,700	799,270	203,530	125,460	9,850.00	198,820
1875	32,737,820	78,350	105,240	60	30,050.00	420
1876	46,386,920	104,280	61,820	135	23,052.50	3,245
1877	43,504,700	211,490	182,660	4,464	92,630.00	3,920
1878	45,916,500	1,031,440	1,427,470	246,972	1,160,650.00	3,020
1879	28,889,260	6,120,320	3,727,155	9,090	331,225.00	3,030
1880	17,749,120	21,715,160	22,831,765	3,108	7,490.00	1,636
1881	14,585,200	48,796,250	33,458,430	1,650	1,700.00	7,660
1882	23,295,400	24,740,640	17,831,885	4,620	10,100.00	5,040
1883	24,980,040	2,595,400	1,647,990	2,820	4,900.00	10,840
1884	19,944,200	2,110,800	1,922,250	3,318	4,982.50	6,206
1885	13,875,560	4,815,270	9,065,030	2,730	2,217.50	12,205
1886	22,120	10,621,600	18,282,160	3,426	10,220.00	6,016
1887	5,662,420	8,706,800	9,560,435	18,480	15,705.00	8,543
1888	21,717,320	8,030,310	1,560,980	15,873	40,245.00	16,080
1889	16,995,120	4,298,850	37,825	7,287	44,120.00	30,729
1890	19,399,080	755,430	290,640		22,032.50	
1891	25,891,340	1,956,000	1,347,065		27,600.00	
1892	19,238,760	9,817,400	5,724,700		6,362.50	
1893	27,178,320	20,132,450	9,610,985		75,265.00	
1894	48,350,800	26,032,780	5,152,275		10,305.00	
1895	45,163,120	7,148,260	7,289,680		15,297.50	
1896	43,931,760	2,000,980	1,072,315		48,005.00	
1897	57,070,220	12,774,090	6,109,415		74,760.00	
1898	54,912,900	12,857,970	10,154,475		60,412.50	
Total	1,411,781,700	293,908,530	237,547,560	1,619,376	28,879,480.00	19,499,337

a Includes $475,000 in Columbian coins.

b Includes $2,026,052.50 in Columbian coins.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION—Continued.

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
....	$1,439,517	$22,658,251.50	$463,907.25	....	$629,625.00	$74,777.15	....
....	....	2,382,400.00	....	....	51,000.00	62,000.00	....
....	....	2,936,830.00	99,500.00	....	77,135.00	62,135.00	....
....	....	2,398,500.00	80,000.00	....	52,250.00	48,250.00	....
....	....	2,603,000.00	39,000.00	....	48,500.00	68,500.00	....
....	....	3,206,002.00	71,500.00	....	63,500.00	74,000.00	....
....	....	2,676,003.00	488,000.00	....	141,000.00	138,000.00	....
....	1,000	3,273,100.00	118,000.00	....	119,000.00	95,000.00	....
....	....	1,814,910.00	63,100.00	....	104,200.00	113,800.00	....
....	....	1,773,000.00	208,000.00	....	239,493.40	112,750.00	....
....	300	1,748,768.00	122,786.50	....	229,638.70	108,285.00	....
....	61,005	1,145,054.00	153,331.75	....	253,358.00	113,954.25	....
....	173,000	355,500.00	143,000.00	....	363,000.00	98,250.00	....
....	184,618	1,484,882.00	214,250.00	....	390,750.00	58,250.00	....
....	165,100	3,056,000.00	403,400.00	....	152,000.00	58,250.00	....
....	20,000	1,885,500.00	290,300.00	....	7,250.00	32,500.00	....
....	24,500	1,341,500.00	230,500.00	....	198,500.00	78,200.00	....
....	169,600	2,257,000.00	127,500.00	....	3,130.00	1,350.00	....
....	140,750	1,870,000.00	275,500.00	....	24,500.00	63,700.00	....
....	15,000	1,880,000.00	36,500.00	....	45,150.00	63,400.00	....
....	62,600	1,781,000.00	85,000.00	....	113,900.00	72,450.00	....
....	47,500	1,341,500.00	150,700.00	....	244,150.00	82,250.00	....
....	1.300	301,375.00	62,000.00	....	142,650.00	82,050.00	$185,022.00
....	1,100	110,565.00	68,265.00	....	196,550.00	63,025.00	559,905.00
....	46,110	2,430,354.00	4,146,555.00	....	1,327,301.00	785,251.00	342,000.00
....	33,140	4,111,000.00	3,466,000.00	....	624,000.00	365,000.00	20,130.00
....	26,000	2,288,725.00	857,350.00	....	207,500.00	117,500.00	4,170.00
....	63,500	1,903,500.00	2,129,500.00	....	703,000.00	299,000.00	43,740.00
....	94,000	1,482,000.00	2,726,500.00	....	712,000.00	433,000.00	31,260.00
....	....	5,998,000.00	2,002,250.00	....	189,000.00	258,000.00	48,120.00
....	636,500	2,074,000.00	421,000.00	....	97,000.00	45,000.00	10,950.00
....	733,930	1,032,850.00	312,350.00	....	78,700.00	92,950.00	8,610.00
....	78,500	2,078,950.00	1,237,650.00	....	209,650.00	164,050.00	14,940.00
....	12,090	802,175.00	249,887.50	....	102,830.00	74,627.50	10,906.50
....	27,660	709,830.00	48,015.00	....	17,196.00	5,923.00	643.80
....	31,170	518,785.00	28,517.50	....	26,907.00	4,523.50	14.10
....	47,000	593,450.00	25,075.00	....	18,550.00	6,675.00	255.00
....	49,625	899,812.50	11,381.25	....	14,372.50	6,536.25	681.75
....	60,325	810,162.50	17.156.25	....	14,662.50	6,431.25	138.75
....	182,700	769,100.00	31,500.00	....	72,625.00	18,295.00	123.00
....	424,300	725,950.00	23,150.00	....	70,660.00	21,930.00	153.00
....	445,462	829,758.50	23,935.00	....	52.150.00	26,830.00	120.00
....	1,117,136	1,741,655.00	53,255.50	....	109,371.00	82,493.00	127.80
....	1,118,600	866,775.00	68,762.50	....	261,045.00	189,247.50	58.50
$1,225,000	296,600	1,593,780.00	414,190.50	....	443,329.10	51 830.00	18.00
4.910,000	....	1,406,650.00	215,975.00	....	319,151.70	....	....
6,279,600	....	5.117,750.00	1,278,375.00	$265,598	2,406,570.00	....	....
6.192,150	....	7,451,575.00	7,839,287.50	5,180	3,015,115.00	....	....
13,092,710	....	7,540,255.00	6,024,927.50	102	1,735,051.00	....	....
4,259,900	22,495,550	726,200.00	849,200.00	120	187,880.00	....	....
1,541	27,560,100	2,950.00	3,675.00	....	1,510.00	....	....
1,987	27,397.355	4,877.50	3,738.75	....	3,735.50	....	....
960	27,927,975	5,487.50	3,243.75	....	2,497.50	....	....
1,097	27,574,100	2,750.00	4,075.00	....	391,110.00	....	....
979	28,470,039	4,519.50	3,859.75	....	767,571.20	....	....
....	28,136,875	2,637.50	2,218.75	....	393,134.90	....	....
....	28,697,767	3,065.00	3,632.50	....	257,711.70	....	....
....	31,423,886	2,943.00	1,471.50	....	658,409.40	....	....
....	33,611,710	2,855.00	2,677.50	....	1,573,838.90	....	....
....	31,990,833	6,416.50	306,708.25	....	721,648.70	....	....
....	34,651.811	6,355.50	3,177.75	....	835,338.90	....	....
....	38,043,004	6,295.00	20,147.50	....	1,133,461.70	....	....
....	23,562,735	100,300.00	1.551,150.00	....	2,304,671.60	....	....
....	6,333.245	[a] 1,652,136.50	2,960,331.00	....	1,695,365.50	....	....
....	1,455,792	[b] 4,003,948.50	[c] 2,583,837.50	....	759,219.30	....	....
....	3,093,972	3,667,831.00	2.233,448.25	....	205,099.60	....	....
....	862,880	2,354,652.00	2,255,390.25	....	225,088.00	....	....
....	19,876,762	1,507,855.00	1.386,700.25	....	318,581.80	....	....
....	12,651,731	2,023,315.50	2.524,440.00	....	1,287,810.80	....	....
....	14,426.735	3,094,642.50	3,497,331.75	....	2,015,324.20	....	....
35,965,924	478,276,095	141,239,516.00	57,847,041.50	271,000	32,456,976.10	4,880,219.40	1,282,087.20

[c] Includes $10,005.75 in Columbian coins.

COINAGE OF THE MINTS OF THE UNITED STATES

RECAPITULATION—Continued.

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1793-1795			
1796			
1797			
1798			
1799			
1800			
1801			
1802			
1803			
1804			
1805			
1806			
1807			
1808			
1809			
1810			
1811			
1812			
1813			
1814			
1815			
1816			
1817			
1818			
1819			
1820			
1821			
1822			
1823			
1824			
1825			
1826			
1827			
1828			
1829			
1830			
1831			
1832			
1833			
1834			
1835			
1836			
1837			
1838			
1839			
1840			
1841			
1842			
1843			
1844			
1845			
1846			
1847			
1848			
1849			
1850			
1851			
1852			
1853			
1854			
1855			
1856			
1857			
1858			
1859			
1860			
1861			
1862			
1863			
1864			$396, 950. 00
1865		$341, 460. 00	272, 800. 00
1866	$737, 125. 00	144, 030. 00	63, 540. 00
1867	1, 545, 475. 00	117, 450. 00	58, 775. 00
1868	1, 440, 850. 00	97, 560. 00	56, 075. 00
1869	819, 750. 00	48, 120. 00	30, 930. 00
Carried forward	4, 543, 200. 00	748, 620. 00	879, 070. 00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION—Continued.

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
$10,660.33	$712.67	$71,485.00	$370,683.80	$11,373.00	$453,541.80
9,747.00	577.40	77,960.00	77,118.50	10,324.40	165.402.90
8,975.10	535.24	128,190.00	14,550.45	9,510.34	152,250.79
9,797.00	....	205,610.00	330,291.00	9,797.00	545,698.00
9,045.85	60.83	213,285.00	423,515.00	9,106.68	645,906.68
28,221.75	1,057.65	317,760.00	224,296.00	29,279.40	571,335.40
13,628.37	....	422,570.00	74,758.00	13,628.37	510,956.37
34,351.00	71.83	423,310.00	58,343.00	34,422.83	516,075.83
24,713.53	489.50	258,377.50	87,118.00	25,203.03	370,698.53
7,568.38	5,276.56	258,642.50	100.340.50	12,844.94	371,827.94
9,411.16	4,072.32	170,367.50	149,388.50	13,483.48	333.239.48
3,480.00	1,780.00	324,505.00	471,319.00	5,260.00	801,084.00
7,272.21	2,380.00	437,495.00	597,448.75	9,652.21	1,044,595.96
11,090.00	2,000.00	284,665.00	684,300.00	13,090.00	982,055.00
2,228.67	5,772.86	169,375.00	707,376.00	8,001.53	884,752.53
14,585.00	1,075.00	501,435.00	638,773.50	15,660.00	1,155,868.50
2,180.25	315.70	497,905.00	608,340.00	2,495.95	1,108,740.95
10,755.00	....	290,435.00	814,029.50	10,755.00	1,115,219.50
4,180.00	....	477,140.00	620,951.50	4,180.00	1,102,271.50
3,578.30	....	77,270.00	561,687.50	3,578.30	642,535.80
....	....	3,175.00	17,308.00	....	20,483.00
28,209.82	....	....	28,575.75	28,209.82	56,785.57
39,484.00	....	....	607,783.50	39,484.00	647,267.50
31,670.00	....	242,940.00	1,070,454.50	31,670.00	1,345,064.50
26,710.00	....	258,615.00	1,140,000.00	26,710.00	1,425,325.00
44,075.50	....	1,319,030.00	501,680.70	44,075.50	1,864.786.20
3,890.00	....	189,325.00	825,762.45	3,890.00	1,018,977.45
20,723.39	....	88,980.00	805,806.50	20,723.39	915,509.89
....	....	72,425.00	895,550.60	....	967,975.00
12,620.00	....	93,200.00	1,752,477.00	12,620.00	1,858,297.00
14,611.00	315.00	156,385.00	1,564,583.00	14,926.00	1,735,894.00
15,174.25	1,170.00	92,245.00	2,002,090.00	16,344.25	2,110,679.25
23,577.32	....	131,565.00	2,869,200.00	23,577.32	3,024,342.32
22,606.24	3,030.00	140,145.00	1,575,600.00	25,636.24	1,741,381.24
14,145.00	2,435.00	295,717.50	1,994,578.00	16,580.00	2,306,875.50
17,115.00	....	643,105.00	2,495,400.00	17,115.00	3,155,620.00
33,592.60	11.00	714,270.00	3,175,600.00	33,603.60	3,923.473.60
23,620.00	....	798,435.00	2,579,000.00	23,620.00	3,401,055.00
27,390.00	770.00	978,550.00	2,759,000.00	28,160.00	3,765,710.00
18,551.00	600.00	3,954,270.00	3,415,002.00	19,151.00	7,388,423.00
38,784.00	705.00	2,186,175.00	3,443,003.00	39,489.00	5,668,667.00
21,110.00	1,990.00	4,135,700.00	3,606,100.00	23,100.00	7,764,900.00
55,583.00	....	1,148,305.00	2,096,010.00	55,583.00	3,299,898.00
63,702.00	....	1,809,765.00	2,333,243.40	63,702.00	4,206,710.40
31,286.61	....	1,376,847.50	2.209,778.20	31,286.61	3,617,912.31
24,627.00	....	1,675.482.50	1,726,703.00	24,627.00	3,426,812.50
15,973.67	....	1,091,857.50	1,132,750.00	15,973.67	2,240,581.17
23,833.90	....	1,829,407.50	2,332,750.00	23,833.90	4,185,991.40
24,283.20	....	8,108,797.50	3,834,750.00	24,283.20	11,967,830.70
23,987.52	....	5,427,670.00	2,235,550.00	23,987.52	7,687,207.52
38,948.04	....	3,756,447.50	1,873,200.00	38,948.04	5,668,595.54
41,208.00	....	4,034,177.50	2,558,580.00	41,208.00	6,633,965.50
61,836.69	....	20,202,325.00	2,374,450.00	61,836.69	22,638,611.69
64,157.99	....	3,775,512.50	2,040,050.00	64,157.99	5,879,720.49
41,785.00	199.32	9,007,761.50	2,114,950.00	41,984.32	11,164,695.82
44,268.44	199.06	31,981,738.50	1,866,100.00	44,467.50	33,892,306.00
98,897.07	738.36	62,614,492.50	774,397.00	99,635.43	63,488,524.93
50,630.94	....	56,846,187.50	999,410.00	50,630.94	57,896,228.44
66,411.31	648.47	39,377,909.00	9,077,571.00	67,059.78	48,522,539.78
42,361.56	276.79	25,915,962.50	8,619,270.00	42,638.35	34,577,870.85
15,748.29	282.50	29,387,968.00	3,501,245.00	16,030.79	32,905,243.79
26,904.63	202.15	36,857,768.50	5,142,240.00	27,106.78	42,027,115.28
177,834.56	175.90	32,214,040.00	5,478,760.00	178,010.46	37,870,810.46
246,000.00	....	22,938,413.50	8,495,370.00	246,000.00	31,679,783.50
364,000.00	....	14.780,570.00	3,284,450.00	364,000.00	18,429,020.00
205,660.00	....	23,473,654.00	2,259,390.00	205.660.00	25,938,704.00
101,000.00	....	83,395,530.00	3,783,740.00	101,000.00	87,280,270.00
280,750.00	....	20,875,997.50	1,252,516.50	280,750.00	22,409.264.00
498,400.00	....	22,445,482.00	809,267.80	498,400.00	23,753,149.80
529,737.14	....	20,081,415.00	609,917.10	926,687.14	21,618,019.24
354,292.86	....	28,295,107.50	691,005.00	968,552.86	29,954,665.36
98,265.00	....	31,435,945.00	982,409.25	1,042,960.00	33,461,314.25
98,210.00	....	23.828,625.00	908,876.25	1,819,910.00	26,557,411.25
102,665.00	....	19,371,387.50	1,074,343.00	1,697,150.00	22,142,880.50
64,200.00	....	17,582.987.50	1.266,143.00	963,000.00	19,812,130.50
4,680,577.44	39,926.11	729,047,572.50	136.478,368.40	10,891,393.55	876,417,334.45

COINAGE OF THE MINTS OF THE UNITED STATES

RECAPITULATION—Continued.

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
Brought forward	$4, 543, 200. 00	$748, 620. 00	$879, 070. 00
1870	240, 300. 00	40, 050. 00	17, 225. 00
1871	28, 050. 00	18, 120. 00	14, 425. 00
1872	301, 800. 00	25, 860. 00	1, 300. 00
1873	227, 500. 00	35, 190. 00	....
1874	176, 900. 00	23, 700. 00	....
1875	104, 850. 00	6, 840. 00	....
1876	126, 500. 00	4, 860. 00	....
1877	....	....	....
1878	117. 50	70. 50	....
1879	1, 455. 00	1. 236. 00	....
1880	997. 75	748. 65	....
1881	3, 618. 75	32, 417. 25	....
1882	573, 830. 00	759. 00	....
1883	1, 148, 471. 05	318. 27	....
1884	563. 697. 10	169. 26	....
1885	73, 824. 50	143. 70	....
1886	166, 514. 50	128. 70	....
1887	763, 182. 60	238. 83	....
1888	536, 024. 15	1, 232. 49	....
1889	794, 068. 05	646. 83	....
1890	812, 963. 60	....	....
1891	841, 717. 50	....	....
1892	584, 982. 10	....	....
1893	668, 509. 75	....	....
1894	270, 656. 60	....	....
1895	498, 994. 20	....	....
1896	442, 146. 00	....	....
1897	1, 021, 436. 75	....	....
1898	626, 604. 35	....	....
Total	16, 142, 911. 80	941, 349. 48	912. 020. 00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION—Continued.

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
$4, 680, 577. 44	$39, 926. 11	$729, 047, 572. 50	$136, 478, 368. 40	$10, 891, 393. 55	$876, 417, 334. 45
52, 750. 00	....	23, 198, 787. 50	1, 378, 255. 50	350, 325. 00	24. 927, 368. 00
39, 295. 00	....	21, 032, 685. 00	3, 104, 038. 30	99, 890. 00	24. 236, 613. 30
40, 420. 00	....	21, 812, 645. 00	2, 504, 488. 50	369, 380. 00	24, 686, 513. 50
116, 765. 00	....	57, 022, 747. 50	4, 024, 747. 60	379, 455. 00	61, 426, 950. 10
141. 875. 00	....	35, 254, 630. 00	6, 851, 776. 70	342, 475. 00	42, 448. 881. 70
135, 280. 00	....	32, 951, 940. 00	15, 347, 893. 00	246, 970. 00	48, 546, 803. 00
79, 440. 00	....	46, 579, 452. 50	24, 503, 307. 50	210, 800. 00	71, 293, 560. 00
8, 525. 00	....	43, 999, 864. 00	28, 393, 045. 50	8, 525. 00	72, 401, 434. 50
57, 998. 50	....	49, 786, 052. 00	28, 518, 850. 00	58, 186. 50	78, 363, 088. 50
162, 312. 00	....	39, 080, 080. 00	27, 569, 776. 00	165, 003. 00	66, 814, 859. 00
389, 649. 55	....	62, 308, 279. 00	27, 411, 693. 75	391, 395. 95	90, 111, 368. 70
392, 115. 75	....	96, 850, 890. 00	27, 940, 163. 75	428, 151. 75	125, 219, 205. 50
385, 811. 00	....	65, 887, 685. 00	27, 973, 132. 00	960, 400. 00	94, 821, 217. 00
455, 981. 09	....	29, 241, 990. 00	29, 246, 968. 45	1, 604, 770. 41	60, 093, 728. 86
232, 617. 42	....	23, 991, 756. 50	28, 534, 866. 15	796, 483. 78	53, 323, 106. 43
117, 653. 84	....	27, 773, 012. 50	28, 962, 176. 20	191, 622. 04	56, 926, 810. 74
176, 542. 90	....	28, 945, 542. 00	32, 086, 709. 90	343, 186. 10	61, 375, 438. 00
452. 264. 83	....	23, 972, 383. 00	35, 191, 081. 40	1, 215, 686. 26	60, 379, 150. 66
374, 944. 14	....	31. 380, 808. 00	33, 025, 606. 45	912, 200. 78	65, 318, 615. 23
488, 693. 61	....	21, 413, 931. 00	35, 496, 683. 15	1, 283, 408. 49	58, 194, 022. 64
571, 828. 54	....	20, 467, 182. 50	39. 202, 908. 20	1, 384, 792. 14	61, 054, 882. 84
470, 723. 50	....	29, 222. 005. 00	27, 518, 856. 60	1, 312, 441. 00	58, 053, 302. 60
376, 498. 32	....	34, 787, 222. 50	12, 641, 078. 00	961, 480. 42	48, 389, 780. 92
466, 421. 95	....	56, 997, 020. 00	8, 802, 797. 30	1, 134, 931. 70	66, 934, 749. 00
167, 521. 32	....	79, 546, 160. 00	9, 200, 350. 85	438, 177. 92	89, 184, 688. 77
383, 436. 36	....	59, 616, 357. 50	5, 698, 010. 25	882, 430. 56	66, 196. 798. 31
390, 572. 93	....	47, 053, 060. 00	23, 089, 899. 05	832, 718. 93	70, 975, 677. 98
504, 663. 30	....	76. 028, 485. 00	18, 487, 297. 30	1. 526, 100. 05	96, 041, 882. 35
498, 230. 79	....	77. 985. 757. 50	23, 034, 033. 45	1, 124, 835. 14	102, 144, 626. 09
12, 811, 409. 08	39. 926. 11	1, 993, 235, 983. 00	752, 218, 859. 20	30, 847, 616. 47	2, 776, 302, 458. 67

INDEX.

A.

Page.
Abyssinia, coinage of, 1896, 1897, and 1898 269
Africa:
  German East, coinage of, 1896 269
  German East, discovery of gold in 161
  French colonies in, production of gold 157
  Gold mines of the Gold Coast 154
  Production of gold, 1896, 1897, and 1898 270–272
  Production of gold, details of 151
Alabama, production of:
  Estimate of Director 13
  Estimate of W. S. Clanton 14
  Statistics of, by W. S. Clanton 131
Alaska, production of:
  Estimate of Director 13
  Estimate of Charles G. Yale 14
  Statistics of, by Charles G. Yale 53
America East Indies, production of gold in Philippine Islands 205
Amount, and cost of silver bullion purchased, used in coinage of silver dollars, wasted, sold in sweeps, and seigniorage since 1890 25
Amount, cost, average price, and bullion value of silver dollars since 1878 24
Appalachian Range, production of:
  Estimate of Director 13
  Estimate of W. S. Clanton 14
  Statistics of, by W. S. Clanton 127
Approximate distribution of gold and silver of producing States and Territories, estimate by the Director 13
Approximate gold product:
  Disposition of 10
  Mines of United States 10
Approximate silver product:
  Disposition of 11
  Mines of United States 11
Arabia, coinage of, 1898 269
Argentina:
  Coinage of, 1896 269
  Industrial consumption 34
  Production of gold and silver, 1896, 1897, and 1898 270–272
  Production of gold and silver, details of 161
Algeria, silver production of 157
Arizona, production of:
  1898, estimate of Director 13
  1898, estimate of John F. Blandy 14
  Statistics of, by John F. Blandy 62
Arts and manufactures:
  Gold and silver used in United States 44
  Gold and silver used in the world 33
Assets and liabilities, United States mints and assay offices, December 31, 1898 242
Atlin gold fields of British Columbia 190
Australasia:
  Coinage of, 1896, 1897, and 1898 269
  Gold and silver production since 1851 164
  Gold production, by colonies, 1896–1898 163
  Industrial consumption 34
  Production of gold and silver, 1896, 1897, and 1898 270–272
  Production of gold and silver, details of 161
  Production of fine silver, by colonies, 1894–1897 165
  Production of silver bullion since 1885 164
  Production of silver lead and silver ore since 1851 164

Page.

- Austria-Hungary:
  - Coinage of, 1896, 1897, and 1898 — 269
  - Production of gold and silver, 1896, 1897, and 1898 — 270–272
  - Production of gold and silver, details of — 176
- Average, highest, and lowest price, of silver — 31
- Average, highest, and lowest price of silver in London since 1833 — 249
- Average price, amount, cost, and bullion value of silver-dollar since 1878 — 24, 25

B.

- Balance of silver bullion on hand January 1, 1899 — 25
- Bars:
  - Gold exchanged for gold coin for use in the arts — 46
  - Furnished for use in the arts since 1880 — 46
  - Manufactured at mints and assay offices — 23
  - Manufactured at mints and assay offices, tables of — 232, 234
- Base bullion and copper matte imported — 258
- Belgium:
  - Coinage of, 1898 — 269
  - Industrial consumption — 36
- Bolivia:
  - Coinage of, 1896, 1897, and 1898 — 269
  - Exports of silver from — 177
  - Production of gold and silver in, 1896, 1897, and 1898 — 270–272
  - Production of gold and silver in, details of — 177
- Borneo, production of gold in — 204
- Brazil:
  - Industrial consumption — 36
  - Production of gold in, 1896, 1897, and 1898 — 270–272
  - Production of gold, State of Minas Geraes, since 1700 — 178
  - Production of gold in, details of — 178
- British Columbia:
  - Atlin gold fields — 190
  - Gold and silver production — 189
  - Production placer gold since 1858 — 189
  - Production lode mines since 1887 — 189
  - Production, details of — 189
- British East Indies, production of:
  - Malay States — 205
  - New Guinea — 205
- British Guiana, production of gold:
  - 1896, 1897, and 1898 — 270–272
  - Details of — 209
- British Honduras, coinage of, 1897 — 269
- British India:
  - Coinage of, 1896, 1897, and 1898 — 269
  - Mining in Colar gold fields — 183
  - Production of gold, 1896, 1897, and 1898 — 270–272
  - Production of gold, details of — 183
- British North America, gold and silver production of — 184
- Bullion:
  - In mints and assay offices, January 1, 1899 — 32
  - Silver, average, highest, and lowest price — 31
  - Silver, balance on hand January 1, 1899 — 25
- Bullion value of silver dollar, amount, cost, and average price since 1878 — 24. 25

C.

- California, production of:
  - Estimate of Director — 13
  - Estimate of Charles G. Yale — 14
  - Statistics, by Charles G. Yale — 64
- Canada:
  - Coinage of, 1896, 1897, and 1898 — 269
  - Mineral production of, in 1898 — 187
  - Production of gold and silver in, 1896, 1897, and 1898 — 270–272
  - Production of gold and silver since 1887 — 185
  - Production of gold and silver in, details of — 184
- Cape Colony, gold production of — 161
- Central America, production of gold and silver:
  - 1896, 1897, and 1898 — 270–272
  - Details of — 194

Page.

- Ceylon, coinage of, 1897 ... 269
- Chile:
  - Coinage of, 1896 and 1897 ... 269
  - Exports of gold and silver since 1890 ... 198
  - Production of gold and silver in, 1896, 1897, and 1898 ... 270–272
  - Production of gold and silver, details of ... 198
- China and Hongkong, exports of gold from ... 200
- China:
  - Coinage of, 1896 and 1897 ... 269
  - Production of gold, 1896, 1897, and 1898 ... 270–272
  - Production of gold, details of ... 200
- Circulation of money in the United States, January 1, 1899 ... 32
- Coin, subsidiary, cost of silver purchased for, 1898 ... 24
- Coinage by the United States for Santo Domingo ... 23
- Coinage:
  - United States, calendar year ... 22, 23
  - United States, 1896, 1897, and 1898 ... 269
  - United States since 1873, by weight and value ... 22
  - United States since organization of Mint, 1793 ... 273–276
  - World, 1896, 1897, and 1898 ... 50
  - World, 1896, 1897, and 1898, table of ... 269
  - World since 1873, by weight and value ... 50
- Copper matte and base bullion imported ... 258
- Colar gold fields, mining in ... 183
- Colombia:
  - Coinage of, 1897 ... 269
  - Exports of gold and silver ... 203
  - Mining in ... 203
  - Production of gold and silver in, 1896, 1897, and 1898 ... 270–272
  - Production of gold and silver in, details of ... 202
- Colorado, production of:
  - Estimate of Director ... 13
  - Estimate of J. L. Hodges ... 14
  - Statistics of, by J. L. Hodges ... 75
- Commercial value of silver, 1898 ... 31
- Commercial ratio of silver to gold since 1687 ... 250
- Congo State:
  - Coinage of, 1896 ... 269
  - Gold in ... 157
- Cost, amount, average price, and bullion value of silver dollar since 1878 ... 24, 25
- Cost of silver purchased for subsidiary coinage, 1898 ... 24
- Costa Rica:
  - Coinage of, 1897 ... 269
  - Industrial consumption of ... 36
  - Production of gold and silver ... 195
- Course of silver ... 31

D.

- Denmark:
  - Coinage of, 1897 and 1898 ... 269
  - Industrial consumption of ... 36
- Deposits of gold and silver:
  - At mints and assay offices ... 16, 19
  - At mints and assay offices, from 1880 ... 22
- Distribution:
  - Approximate, of gold and silver, by producing States and Territories, estimate of Director ... 13
  - Approximate, of silver product of mines of United States ... 11
  - Of gold and silver product by agents ... 14
  - Of gold and silver, by States and Territories ... 10
- Dollar, silver, amount, cost, average price, and bullion value since 1878 ... 24, 25
- Dutch East Indies:
  - Mining law of ... 205
  - Production of gold in Borneo ... 204
- Dutch Guiana, production of gold:
  - 1896, 1897, and 1898 ... 270–272
  - Details of ... 210
  - Since 1887 ... 210

E.

Page.

- East India, British, production of New Guiana, 205
- East Indies:
  - American, production of gold in Philippine Islands, 205
  - British, production of gold, 1897 and 1898, 270–272
  - British, production of Malay States, 205
  - Dutch, production of gold, 1896, 1897, and 1898, 270–272
  - Dutch, production of gold in Borneo, 204
- Ecuador:
  - Coinage of, 1896 and 1897, 269
  - Industrial consumption of, 36
  - Production of gold and silver, 1896, 1897, and 1898, 270–272
  - Production of gold and silver, details of, 207
- Egypt:
  - Coinage of, 1896, 1897, and 1898, 269
  - Industrial consumption, 36
- Employment of gold and silver in industrial arts in:
  - United States, 44
  - World, 33
- Eritrea, coinage of, 1896, 269
- Estimate of Director, of gold and silver product of United States, 13
- Exports and imports:
  - Gold and silver bullion and coin, 25
  - Gold and silver bullion and coin, tables of, 260–268
  - Gold and silver from Chile since 1890, 198
  - Gold from China and Hongkong, 200
- Exports:
  - Gold and silver from Mexico, 213
  - Gold from Colombia, 203
  - Silver from Bolivia, 177
  - Silver from Colombia, 203
  - Silver from Peru, 216
  - Silver from Tasmania since 1884, 172

F.

- Fluctuation in price of silver, 31
- Form and distribution of stock of money in United States January 1, 1899, 32
- Formosa, discovery of gold in, 211
- France:
  - Coinage of, 1896, 1897, and 1898, 269
  - Industrial consumption, 36
  - Production of silver in, 1896, 1897, and 1898, 270–272
  - Production of silver in, details of, 207
- French colonies in Africa, gold production of, 157
- French Guiana, production of gold:
  - 1896, 1897, and 1898, 270–272
  - Details of, 210

G.

- Georgia, production of:
  - Estimate of Director, 13
  - Estimate of W. S. Clanton, 14
  - Statistics, by W. S. Clanton, 131
- German East Africa:
  - Coinage of, 1896, 1897, and 1898, 269
  - Discovery of gold in, 161
- Germany:
  - Coinage of, 1896, 1897, and 1898, 269
  - Industrial consumption, 37
  - Production of gold and silver in, 1896, 1897, and 1898, 270–272
  - Production of gold and silver in, details of, 208
  - Production of refineries in, 208
- Gold and silver:
  - Approximate distribution, by States, and estimate of Director, 13, 14
  - Bullion in mints, 32
  - Coinage, by nations, 1896, 1897, and 1898, 50
  - Coinage, by nations, 1896, 1897, and 1898, tables of, 269
  - Coinage of world, weight and value since 1873, 50

Gold and silver—Continued. Page.
    Product of mines of United States since 1860 15
    Product of United States, estimate of agents 14
    Product of world, weight and value since 1860 49
    Product of United States, reported by agents 13
    Production in the world 47
    Received at mints and assay offices since 1880 22
    Used in industrial arts in United States 44
Gold:
    Bars exchanged for gold coin 46
    Bars manufactured at mints and assay offices 23
    Bars manufactured at mints and assay offices, table of 232, 234
    Bullion deposited at mints and assay offices 18
    Bullion deposited at mints and assay offices since 1880 22
    Bullion, stock of, in United States January 1, 1899 32
    Coinage of the mints of the world since 1873 50
    Coinage of United States 22
    Coinage of United States, table of 246
    Coinage of United States since 1873, fine ounces and value 22
    Coinage of United States from organization of Mint, 1793 273–276
    Coinage of various countries, 1896, 1897, and 1898 50
    Coinage of various countries, 1896, 1897, and 1898, table of 269
    Deposits at mints and assay offices 16
    Discovery in Formosa 211
    Discovery in German East Africa 161
    Exports from China and Hongkong 200
    Exported from Colombia 203
    Extracted from ores in Newfoundland 194
    Imports and exports, 1898 25
    Imports and exports, 1898, tables of 258–268
    Imported from West Coast of Africa into England since 1889 154
    In Australia 162
    In Congo States 157
    Philippine Islands 206
    Torres Strait, Australasia 176
    The Transvaal 154
    Mines of the Gold Coast, Africa 154
    Mines, new, in Mexico 215
    Mines of New Zealand 167
    Mines of Nova Scotia 187
    Mines of Rhodesia 158
    Mines of Manchuria 200
    Mines of Minas Geraes, Brazil 179
    Mines of Queensland 169
    Mining in New Zealand, particulars of 167
    Mining in the Colar Fields of Mysore, India 183
    Mining operations in Tasmania 172
    Movement from United States 30
    Product of mines of United States since 1860, by value 15
    Product of mines of United States, approximate 10
    Product of mines of United States, approximate disposition 10
    Product of mines, by States and Territories, 1897 and 1898 10
    Product of mines distributed by States and Territories 10
    Product of mines reported by Mint officers and agents 14
    Production of, in the United States, 1896, 1897, and 1898, table of 270–272
    Production of, in the United States, 1898 9
    Production of, in the United States, 1898, distributed among States and Territories 13
    Production in the United States, 1898, estimate by Mint officers and agents 13
    Production of, in the United States, 1898, estimate of Director 14
    Production of, in the United States, 1898, estimate of John J. Valentine. 246
    Production of, in the United States, 1898, by placer and quartz mining .. 14
    Production of, in the world 47
    Production of, in the world, table of 270–272
    Production of, in the world since 1860, by weight and value 49
    Production of Africa 151
    Production of Argentina 161
    Production of Austria-Hungary 176
    Production of Australasia 161

Gold—Continued. Page.
- Production of Australasia, by colonies, 163–166
- Production of Australasia since 1851, 164
- Production of British Columbia, 189
- Production of British Columbia since 1859, 189
- Production of British India, 183
- Production of British India since 1892, 183
- Production of Canada, 184
- Production of Canada since 1887, 185
- Production of Cape Colony, 161
- Production of French colonies of Africa, 157
- Production of Klondike, 191
- Production of Madagascar, 157
- Production of Minas Geraes, Brazil, since 1700, 178
- Production of Mozambique, 160
- Production of Nova Scotia, 186
- Production of Nova Scotia since 1862, 187
- Production of Rhodesia, 157
- Production of Soudan, 157
- Production of South Australia, 171
- Production of Tasmania since 1880, 172
- Production of Transvaal, 151
- Production of Western Australia since 1886, 173
- Production of Witwatersrand since 1887, 152
- Production of Zululand, 161
- Used for industrial purposes in United States, 44
- Used for industrial purposes in United States since 1880, 46
- Used for industrial purposes in world, 33

Gold Coast of Africa, gold mines in, 154

Government purchases of silver, 23

Great Britain:
- Coinage of, 1896, 1897, and 1898, 269
- Imports and exports of silver bullion, 258, 268
- Industrial consumption, 41
- Production of gold and silver in, 1896, 1897, and 1898, 270–272
- Production of gold and silver in, details of, 208

Greece:
- Industrial consumption, 42
- Production of silver in, 1896, 1897, and 1898, 270–272
- Production of silver in, details of, 209

Guiana, British: Production of gold—
- 1896, 1897, and 1898, 270–272
- Details, 209

Guiana, Dutch: Production of gold—
- 1896, 1897, and 1898, 270–272
- Details of, 210

Guiana, French: Production of gold—
- 1896, 1897, and 1898, 270–272
- Details of, 210

H.

Haiti, industrial consumption, 42

Highest, lowest, and average price of silver in:
- United States, 31
- London since 1833, 249

Hongkong, coinage of, 1896, 1897, and 1898, 269

Hungary, industrial consumption, 35

I.

Idaho, production of:
- Estimate of Director, 13
- Estimate of J. W. Cunningham, 14
- Statistics of, by J. W. Cunningham, 101

Imports and exports:
- Gold and silver, 25
- Gold and silver, tables of, 260–268

Imports:
- Copper matte, base bullion, etc, 258
- Gold into England from West Coast of Africa since 1889, 154

Page.

- India:
  - British, coinage of, 1896, 1897, and 1898 269
  - Mining in Colar gold fields of Mysore 183
  - Production of gold in, 1896, 1897, and 1898 270–272
  - Production of gold in, details of 183
- Indo-China, coinage of, 1896, 1897, and 1898 269
- Industrial arts:
  - Gold and silver used in, in United States 44
  - Consumption of gold and silver in the world 33
- Iowa, production of, estimate of Director 13
- Italy:
  - Coinage of, 1897 and 1898 269
  - Industrial consumption 42
  - Production of gold and silver in, 1896, 1897, and 1898 270–272
  - Production of gold and silver in, details of 210

J.

- Japan:
  - Coinage of, 1896, 1897, and 1898 269
  - Industrial consumption 42
  - Production of gold and silver in, 1896, 1897, and 1898 270–272
  - Production of gold and silver in, details of 211
  - Production of gold and silver since 1890 211

K.

- Klondike:
  - Output for 1899 191
  - Production of gold in 191
- Korea, production of gold:
  - 1896, 1897, and 1898 270–272
  - Details of 212

L.

- Letter of transmittal 5
- Liabilities and assets, mints and assay offices, December 31, 1898 242
- Liberia, coinage of, 1896 269
- Lichtenstein, coinage of, 1898 269
- Location of moneys of United States 32

M.

- Madagascar, gold production of 157
- Manchuria, China, gold fields of 200
- Market for silver 31
- Maryland, production of:
  - Estimate of Director 13
  - Estimate of W. S. Clanton 14
  - Statistics of, by W. S. Clanton 128
- Mauritius, coinage of, 1896, 1897, and 1898 269
- Metallic stock 32, 33
- Mexico:
  - Coinage of, 1896, 1897, and 1898 269
  - Exports of gold and silver 213
  - Mineral deposits of 214
  - Mining industry in 214
  - New gold mines in 215
  - Production of gold and silver in, 1896, 1897, and 1898 270–272
  - Production of gold and silver in, details of 212
  - Production of gold and silver in, estimate of John J. Valentine 246
- Michigan, production of, estimate of Director 13
- Mineral deposits of Mexico 214
- Mineral production of Canada 186
- Mining:
  - In Colar gold fields of Mysore, India 183
  - In Colombia 203
  - Industry in Mexico 188, 214
  - In western Australia 173
  - Law of Dutch East Indies 205
- Minnesota, production of, estimate of Director 13

Page.

- Minor coinage of United States 23, 240
- Monaco, coinage of, 1896 269
- Money in United States, stock of 32
- Moneys of United States, metallic and paper, location of 33
- Montana, production of:
  - Estimate of Director 13
  - Estimate of E. B. Braden 14
  - Statistics of, by E. B. Braden 104
- Morocco, coinage of, 1896, 1897, and 1898 269
- Movement of gold from the United States 30
- Mozambique, gold production of 160
- Mines of United States:
  - Approximate gold product of 10
  - Approximate disposition of product 11
  - Gold and silver product since 1860 15

N.

- Native metallurgy in the Philippine Islands 205
- New South Wales, production of gold 166
- New Zealand:
  - Gold mines of 167
  - Production of gold and silver 167
  - Production of gold mines, by districts 167
- Netherlands:
  - Coinage of 1896, 1897, and 1898 269
  - Industrial consumption 42
- Nevada:
  - Production of, estimate of Director 13
  - Production of, estimate of R. K. Colcord 14
  - Production of, statistics of, by R. R. Colcord 118
- Newfoundland:
  - Coinage of 1896 and 1898 269
  - Gold extracted from ores 194
  - Production of gold and silver 1896, 1897, and 1898 270–272
- New Guinea, production of gold 205
- New Mexico:
  - Production of, estimate of Director 13
  - Production of, estimate of Corbett and Wyman 14
  - Production of, statistics of, by Corbett and Wyman 120
- North Carolina:
  - Production of, estimate of Director 13
  - Production of, estimate of W. S. Clanton 14
  - Production of, statistics of, by W. S. Clanton 129
- Norway:
  - Coinage of 1896, 1897, and 1898 269
  - Industrial consumption 42
  - Production of silver, 1896, 1897, and 1898 270–272
  - Production of silver, details of 215
- Notes of United States outstanding January 1, 1899 32
- Nova Scotia:
  - Gold mines of 187
  - Gold production of 186
  - Gold production of, since 1862 187

O.

- Oregon, production of:
  - Estimate of Director 13
  - Estimate of E. B. Braden 14
  - Statistics of, by E. B. Braden 121

P.

- Paper money in circulation in United States, January 1, 1899 33
- Paraguay, industrial consumption 42
- Persia, coinage of, 1898 269

Peru: Page.
- Coinage of, 1896, 1897, and 1898 269
- Industrial consumption of 42
- Mines and industries in 216
- Production of gold and silver, 1896, 1897, and 1898 270–272
- Production of gold and silver, details of 215
- Silver exports of 216

Philippine Islands:
- Gold in 206
- Native metallurgy in 205

Puerto Rico, coinage of, 1898 269

Portugal:
- Coinage of, 1896, 1897, and 1898 269
- Industrial consumption of 43
- Production of gold and silver, 1896, 1897, and 1898 270–272
- Production of gold and silver, details of 217

Price of silver 31

Production of gold in—
- Africa 151
- Algeria 157
- Australasia 161
- British East Indies 205
- British India, since 1892 183
- British Guiana 209
- Dutch Guiana, since 1887 210
- French colonies in Africa 157
- French Guiana 210
- Korea 212
- Klondike 191
- Madagascar 157
- Malay States 205
- Mozambique 160
- New South Wales 166
- Nova Scotia 186
- Nova Scotia, since 1862 187
- Philippine Islands 205
- Rhodesia 157
- Sudan 157
- The Guianas 209
- The Transvaal 151
- Uruguay 219
- Witwatersrand, since 1887 152
- Zululand 161
- Cape Colony 161
- Kongo State 157

Production of—
- Gold mines of New Zealand, by districts 167
- Lode mines of British Columbia, since 1887 189
- Placer gold in British Columbia, since 1859 189

Product of gold mines of United States, since 1860 15

Production of gold and silver in—
- Alabama, estimate of Director 13
- Alabama, estimate of W. S. Clanton 14
- Alabama, statistics of, by W. S. Clanton 131
- Alaska, estimate of Director 13
- Alaska, estimate of Charles G. Yale 14
- Alaska statistics of, by Charles G. Yale 53
- Arizona, estimate of Director 13
- Arizona, estimate of John F. Blandy 14
- Arizona, statistics of, by John F. Blandy 62
- California, estimate of Director 13
- California, estimate of Charles G. Yale 14
- California, statistics of, by Charles G. Yale 64
- Colorado, estimate of Director 13
- Colorado, estimate of James L. Hodges 14
- Colorado, statistics of, by James L. Hodges 75
- Georgia, estimate of Director 13
- Georgia, estimate of W. S. Clanton 14
- Georgia, statistics of, by W. S. Clanton 131
- Idaho, estimate of Director 13

Production of gold and silver in— Page.
  Idaha, estimate of J. W. Cunningham 14
  Idaho, statistics of, by J. W. Cunningham 101
  Iowa, estimate of Director 13
  Maryland, estimate of Director 13
  Maryland, estimate of W. S. Clanton 14
  Maryland, statistics of, by W. S. Clanton 128
  Michigan, estimate of Director 13
  Minnesota, estimate of Director 13
  Montana, estimate of Director 13
  Montana, estimate of E. B. Braden 14
  Montana, statistics of, by E. B. Braden 104
  Nevada, estimate of Director 13
  Nevada, estimate of R. K. Colcord 14
  Nevada, statistics of, by R. K. Colcord 118
  New Mexico, estimate of Director 13
  New Mexico, estimate of Corbett and Wyman 14
  New Mexico, statistics of, by Corbett and Wyman 120
  North Carolina, estimate of Director 13
  North Carolina, estimate of, by W. S. Clanton 14
  North Carolina, statistics of, by W. S. Clanton 129
  Oregon, estimate of Director 13
  Oregon, estimate of E. B. Braden 14
  Oregon, statistics of, by E. B. Braden 121
  South Carolina, estimate of Director 13
  South Carolina, estimate of, by W. S. Clanton 14
  South Carolina, statistics of, by W. S. Clanton 130
  South Dakota, estimate of Director 13
  South Dakota, estimate of F. R. Carpenter 14
  South Dakota, statistics of, by F. R. Carpenter 133
  Tennessee, estimate of Director 13
  Tennessee, estimate of W. S. Clanton 14
  Tennessee, statistics of, by W. S. Clanton 132
  Texas, estimate of Director 13
  United States, 1896, 1897, and 1898 270–272
  United States, details of 9
  United States, since 1860 15
  United States, 1898 9
  United States, by States and Territories 10
  United States, by Mint officers and agents 13
  United States, placer and quartz mining 14
  Utah, estimate of Director 13
  Utah, estimate of E. B. Braden 14
  Vermont, estimate of Director 13
  Virginia, estimate of Director 13
  Virginia, estimate of W. S. Clanton 14
  Virginia, statistics of, by W. S. Clanton 128
  Washington, estimate of Director 13
  Washington, estimate of E. B. Braden 14
  Washington, statistics of, by E. B. Braden 141
  Wyoming, estimate of Director 13
  Wyoming, estimate of F. R. Carpenter 14
  Wyoming, statistics of, by F. R. Carpenter 147
  World, 1896, 1897, and 1898 270–272
  World, since the discovery of America, table of 274
  World, 1898 47
  World, 1896, 1897, and 1898 270–272
  World, since 1860, weight and value 49
  World 47
  World, since 1860 49
Production of silver in the United States—
  1898 11
  Since 1860 15
  Approximate 11
  By States and Territories 12
  Estimate of Director 13
  Reported by Mint officers and agents 14
Production—
  Mineral, of Canada, in 1898 186
  Of fine silver in Australasia, by colonies, 1894–1897 165
  Of German refineries 208

Production of gold and silver in— Page.
  Foreign countries 149
  Foreign countries, table of 151
  Argentina 161
  Bolivia 177
  Central America 194
  Costa Rica 195
  Colombia 202
  Chile 198
  China 200
  Ecuador 207
  Germany 208
  Great Britain 208
  Italy 210
  Japan 211
  Japan, since 1890 211
  Mexico 212
  New Zealand 167
  Norway 215
  Peru 215
  Portugal 217
  Russia 217
  Servia 218
  Spain 218
  Sweden 218
Production of—
  Silver bullion in Australasia, since 1851 161
  Silver-lead and silver ore in Australasia, since 1851 164
  Queensland, since 1877 169
  Silver in France 207
  Silver in Greece 209
Product of—
  mines of United States, approximate disposition of 10
  silver mines of United States 11
Purchase of silver 23
Purchase of silver and cost of, for subsidiary coin 24

Q.

Queensland:
  Estimated gold yield of mines since 1877 169
  Gold mines of 169
  Production of gold in 169
  Particulars of the gold production in 169

R.

Ratio of silver to gold each year since 1687 250
Russia:
  Coinage of, 1896, 1897, and 1898 269
  Production of gold and silver in, 1896, 1897, and 1898 270–272
  Production of gold and silver in, details of 217
  Refinery production of, since 1892 218
  Refinery production of silver since 1822 218
Reports of special agents on production of precious metals in the States and Territories 51
Redeposit of:
  Gold 17
  Silver 20
Refinery production of Germany 208
Rhodesia:
  Gold production of 157
  Gold mines of 158

S.

San Marino, coinage of, 1897 and 1898 269
San Salvador, industrial consumption 43
Santo Domingo, coinage of:
  1897 and 1898 269
  Silver for, by the United States 23

Page.

- Saskatchewan region, mining in 188
- Servia:
  - Coinage of, 1897 and 1898 269
  - Production of gold and silver in, 1896, 1897, and 1898 270–272
  - Production of gold and silver in, details of 218
- Seigniorage on coinage of silver dollars wasted, sold in sweeps, since 1890 25
- Siam:
  - Coinage of, 1896 and 1898 269
  - Industrial consumption 43
- Silver and gold:
  - Approximate distribution by States and Territories, estimate of Director 13
  - Bullion in the mints 32
  - Coinage of world since 1873 50
  - Production by States, reported by agents 13
  - Production of mines of United States since 1860 15
  - Production of the world 47
  - Received at mints and assay offices since 1880 22
  - Production in the world since 1860 49
  - Production in the world, 1896, 1897, and 1898, tables of 270–272
- Silver:
  - Average price of, 1898 31
  - Bars furnished for use in the arts 46
  - Bars manufactured at mints and assay offices 23
  - Bars manufactured at mints and assay offices, tables of 232–234
  - Bullion, balance on hand January 1, 1899 25
  - Bullion deposited at mints and assay offices 21
  - Bullion in mints and assay offices 32
  - Bullion, value of fine ounce 31
  - Bullion wasted, coined, and senioriage since 1890 25
  - Coinage of United States 22
  - Coinage of United States since 1873, fine ounces and value 22
  - Coinage of United States since organization of Mint, 1793 273–276
  - Coinage of various countries, 1896, 1897, and 1898 50
  - Coinage of various countries, 1896, 1897, and 1898, tables of 270–272
  - Course of 31
  - Deposits of 19
  - Dollars, amount, cost, average price, and bullion value since 1878 24–25
  - Exports from Calcutta 203
  - Highest, lowest, and average price of 31
  - Highest, lowest, and average price of, in London since 1833 249
  - Imports and exports 25
  - Imports and exports, table of 260–268
  - Market for 31
  - Mining in Australia 167
  - Product of mines of United States 11
  - Product of mines of United States since 1860 15
  - Product of mines of United States, approximate 13
  - Product of mines of United States, disposition 14
  - Product of mines, by States and Territories, 1897 and 1898 12
  - Product of mines distributed by States and Territories 14
  - Product of mines, estimate of Director 13
  - Product of mines reported by Mint officers and agents 14
  - Production of, in United States, 1896, 1897, and 1898 270–272
  - Production of, in United States, 1898 11
  - Production of, in United States, 1898, distributed among States and Territories 13–14
  - Production of, in United States, estimate of Director 14
  - Production of, in United States, estimate of John J. Valentine 246
  - Production of world 47
  - Production of world since 1860, weight and value 49
  - Production in foreign countries 149, 151
  - Production of Algeria 157
  - Production of Argentina 161
  - Production of Austria-Hungary 177
  - Production of Australasia since 1851 164
  - Production of Canada 184
  - Production of Canada since 1887 185
  - Production of British Columbia 189
  - Production of British North America 184

Silver—Continued. Page.

- Purchases 23
- Purchase for subsidiary coin, cost of 24
- Used in industrial arts in the United States 44
- Used in the industrial arts in the United States since 1880 46
- Used in the industrial arts in the world 33

Soudan, gold production of 157

South Africa, industrial consumption of 43

South Australia, gold production of 171

South Appalachian States, production of:

- Estimate of Director 13
- Estimate of W. S. Clanton 14
- Statistics of, by W. S. Clanton 127

South Dakota, production of:

- Estimate of Director 13
- Estimate of F. R. Carpenter 14
- Statistics of, by F. R. Carpenter 133

South Carolina, production of:

- Estimate of Director 13
- Estimate of W. S. Clanton 14
- Statistics of, by W. S. Clanton 130

Spain:

- Coinage of, 1896 and 1897 269
- Production of gold and silver in, 1896, 1897, and 1898 270–272
- Production of gold and silver in, details of 218

Straits Settlements, coinage of, for 1896, 1897, and 1898 269

Stock of money in the United States 32–33

Subsidiary coin, cost of silver purchased for 24

Sweden:

- Coinage of, 1896, 1897, and 1898 269
- Industrial consumption 43
- Production of gold and silver in, details of 218
- Production of gold and silver in, 1896, 1897, and 1898 270–272

Switzerland:

- Coinage of, 1896, 1897, and 1898 269
- Industrial consumption 43

T.

Tables:

- Amount and cost of silver bullion purchased, used in coinage and sold in sweeps 236–237
- Assets and liabilities, mints and assay offices, December 31, 1898 242
- Bars, manufactured, standard ounces 232
- Bars, manufactured, value 234
- Coinage, United States, 1898 240
- Coinage, United States, by institutions, since 1793 273
- Coinage, United States, fractional and subsidiary, since 1793 273
- Coinage, United States, since organization of Mint, by denominations and value 276
- Coinage, various countries, 1896, 1897, and 1898 269
- Domestic coins for recoinage 234
- Deposits and purchases of gold and silver, standard ounces 222
- Deposits and purchases of gold and silver, value 224
- Deposits of unrefined gold, standard ounces 226
- Deposits of unrefined gold, value 228
- Deposits of unrefined gold from organization of Mint 245
- Deposits of unrefined silver, standard ounces 230
- Deposits of unrefined silver, value 232
- Deposits of unrefined silver, value from organization of Mint 245
- Highest, lowest, and average price of silver in London since 1833 249
- Imports and exports of gold and silver, 1898 258–268
- Nominal value of materials used in subsidiary silver coinage 237
- Production of gold and silver in the world from 1492 274
- Production of gold and silver in the United States, 1896, 1897, and 1898 270–272
- Production of gold and silver in the United States and Mexico, 1898, by John J. Valentine 246
- Production of gold and silver in the world, 1896, 1897, and 1898 270–272
- Production of gold and silver in the world since the discovery of America 274
- Quantity and cost of metal obtained by transfer and purchase for subsidiary coinage 237

Tables—Continued. Page.
  Quantity and cost of silver used in coinage of silver dollars 236
  Ratio of silver to gold each year since 1687 250
  Recoinage of the United States 234
  Silver for subsidiary coinage 238
  Unrefined domestic gold and silver deposited by States and Territories since 1793 244
Tasmania, gold production since 1884 172
Tennessee:
  Gold production since 1884 13
  Production of, estimate of Director 13
  Production of, estimate of W. S. Clanton 14
  Production of, statistics of, by W. S. Clanton 132
Texas, production of, estimate of Director 13
Transvaal, production of gold in 151
Tunis, coinage of, 1896, 1897, and 1898 269
Turkey:
  Coinage of, 1896, 1897, and 1898 269
  Production of gold and silver in, 1896, 1897, and 1898 270-272
Transvaal, gold in 153
Torres Strait, Australasia, gold in 176
The Guianas, production of gold 209

U.

United States:
  Approximate disposition of silver product 11
  Coinage of, 1896, 1897, and 1898 269
  Coinage of, since 1873 22
  Coinage of, 1898 23
  Coinage, table of 240
  Coinage of, since organization of Mint 273-276
  Money, metallic and paper, location of 33
  Production of, 1896, 1897, and 1898 270-272
  Production of, details of 9
  Product of, gold and silver, estimate of Director 13
  Product of, gold and silver, estimate of agents 14
  Silver product by States and Territories, 1897 and 1898 12
  Silver production in 11
  Stock of money in 32
  Use of gold and silver in industrial arts 44
Uruguay, production of gold:
  1896, 1897, and 1898 270-272
  Details of 219
Utah, production of:
  Estimate of Director 13
  Estimate of E. B. Braden 14
  Statistics of, by E. B. Braden 135

V.

Valentine, John J., estimate of production of gold and silver in:
  United States, 1898 246
  Mexico, 1898 247
Venezuela:
  Gold dredging in 219
  Production of gold in, details of 219
  Production of gold in, 1896, 1897, and 1898 270-272
Vermont, production of, estimate of Director 13
Virginia, production of:
  Estimate of Director 13
  Estimate of W. S. Clanton 14
  Statistics of, by W. S. Clanton 128

W.

Washington, production of:
  Estimate of Director 13
  Estimate of F. A. Wing 14
  Statistics of, by F. A. Wing 141

Page.

Wasted in coinage of silver dollars, sold in sweeps, and seigniorage since 1890 25
Witwatersrand, gold production since 1887 152
Western Australia:
  Gold production of, since 1886 173
  Mining in 173

World's coinage, 1896, 1897, and 1898 50
World's coinage, 1896, 1897, and 1898, table of 269
World's coinage since 1873, weight and value 50
World's industrial consumption of gold and silver 33
World's production of gold and silver 47
World's production of gold and silver since 1860, weight and value 49
World's production of gold and silver, 1896, 1897, and 1898 270-272
World's production of gold and silver details of 47
Wyoming, production of, estimate of Director 13
  Estimate of F. R. Carpenter 14
  Statistics of, by F. R. Carpenter 147
West Coast of Africa, production of gold imported into England since 1889. 154

Y.

Yukon and Klondike (*see* Canada) 184

Z.

Zululand, gold production of 161